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LANCASHIRE

COUNTY COUNCIL

PREVENTION AND TREATMENT OF TUBERCULOSIS IN THE ADMINISTRATIVE COUNTY OF LANCASTER.

Report of the Central Tuberculosis Officer
of the Lancashire County Council
for the Year 1930.

C. Tinling & Co. Ltd., Liverpool, London and Prescot.
1931.

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COUNTY TUBERCULOSIS COMMITTEE
(1931).

The Chairman of the County Council :
†J. T. Travis Clegg, Esq., D.L., J.P.

The Vice-Chairman of the County Council :
*†W. Hodgson, Esq., J.P.

Chairman of Committee :
*†C. J. Trimble, Esq., C.B., C.M.G., L.R.C.P., D.P.H., D.L., J.P.

Vice-Chairman :
*E. Boothman, Esq., J.P.

County Aldermen—

J. C. Beckitt, Esq., M.R.C.S., L.R.C.P., D.P.H.
A. S. Bury, Esq., J.P.
R. Sephton, Esq., M.R.C.S., J.P.

County Councillors—

*B. P. Allen, Esq.
L. Allen, Esq., J.P.
J. W. Baron, Esq., J.P.
H. Bright, Esq.
E. Clegg, Esq.
W. T. Jackson, Esq., J.P.
H. F. Jeffery, Esq., M.B., Ch.B., J.P.
*A. Kenyon, Esq.
*Rev. A. Kershaw, M.A.
W. J. Lucas, Esq., J.P.
*P. F. Mannix, Esq., M.D., M.Ch., B.A.O., J.P.
*Rev. A. M. Mitchell, M.A.
N. Worsley, Esq., J.P.

* Members of the Sanatorium and Hospital Sub-Committee.

† County Aldermen.

MEDICAL AND NURSING STAFF OF THE TUBERCULOSIS DEPARTMENT, 1931.

G. Lissant Cox, M.A., M.D. (Camb.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Central Tuberculosis Officer.

DISPENSARY AREAS.

Area No. 1. (Population 263,206).

(Lancaster, Morecambe and Heysham, Lytham St. Annes, Garstang Rural (part), Preston Rural, Walton-le-Dale, Chorley, and Horwich districts).

Consultant Tuberculosis Officer—Alan D. Brunwin, M.A., M.D., B.Ch. (Camb.), D.P.H. (Aberdeen).

Assistant Tuberculosis Officer—George H. Leigh, M.D., Ch.B., D.P.H. (Manch.).

Area No. 2. (Population 350,103).

(Clitheroe, Colne, Nelson, Burnley Rural, Blackburn Rural, Accrington, Darwen, Haslingden, Rawtenstall, and Bacup districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Withnell Pulmonary Hospital—Burgess MacPhee, M.B., Ch.B. (Glas.), D.P.H. (Camb.).

Assistant Tuberculosis Officers—Scott C. Adam, M.B., Ch.B. (Glas.), D.P.H. (Lond.), and F. C. S. Bradbury, M.B., B.Ch., B.A.O. (Belfast).

Area No. 3. (Population 375,295).

(Ramsbottom, Littleborough, Radcliffe, Heywood, Crompton, Royton, Prestwich, Middleton, Chadderton, Failsworth, Ashton-under-Lyne, Mossley, and Denton districts).

Consultant Tuberculosis Officer—George Fletcher, M.A., M.D., (Glas.), M.R.C.P. (Lond.), D.P.H. (Camb.).

Assistant Tuberculosis Officers—Cecil Berry, L.R.C.P., L.R.C.S. (Edin.), L.R.F.P.S. (Glas.), D.P.H. (R.C.P.S.I.), and John Cathcart, M.B., Ch.B. (Edin.), D.P.H. (R.C.P.S.I.).

Area No. 4. (Population 346,074).

(Westhoughton, Atherton, Farnworth, Leigh, Swinton and Pendlebury, Eccles, and Stretford districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Peel Hall Pulmonary Hospital—George Jessel, M.A., M.D. (Oxon.), D.P.H. (Manch.).

Assistant Tuberculosis Officers—Alexander B. Jamieson, M.B., Ch.B. (Edin.), and Henry J. Villiers, L.R.C.P.I., L.R.C.S.I.

Area No. 5. (Population 371,131).

(West Lancashire Rural, Great Crosby, Waterloo-with-Seaforth, Ince-in-Makerfield, Hindley, Ashton-in-Makerfield, Newton-in-Makerfield, Whiston Rural, Warrington Rural, and Widnes districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Rufford Pulmonary Hospital—Charles W. Laird, B.A., M.D. (Dublin), D.P.H. (Liverpool).

Assistant Tuberculosis Officers—Charles H. Lilley, M.B., Ch.B. (St. Andrews), D.P.H. (Lond.), and James L. Armour, M.B., Ch.B. (Liverpool), M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Furness Sub-Area. (Population 38,301).

(Dalton-in-Furness, Grange-over-Sands, Ulverston, and Ulverston Rural districts).

Consultant Tuberculosis Officer—George Leggat, M.B., Ch.B., D.P.H. (Aberdeen), Medical Superintendent of the High Carley Sanatorium.

Fylde Sub-Area. (Population 62,850).

(Fleetwood, Thornton Cleveleys, Fylde Rural, Garstang Rural (part), and Kirkham districts).

Consultant Tuberculosis Officer—G. Barker Charnock, L.R.C.P., L.R.C.S. (Edin.), L.R.F.P.S. (Glas.), D.P.H. (Liverpool), Medical Superintendent of the Elswick Sanatorium.

SANATORIA AND HOSPITALS.

(owned or leased by the County Council).

High Carley Sanatorium and Oubas House Children's Sanatorium.

George Leggat, M.B., Ch.B., D.P.H. (Aberdeen), Medical Superintendent (also Consultant Tuberculosis Officer for Furness Sub-Area).

John E. Wallace, Temporary Assistant Medical Officer (from 26th November, 1930).

Elswick Sanatorium.

G. Barker Charnock, L.R.C.P., L.R.C.S. (Edin.), L.R.F.P.S. (Glas.), D.P.H. (Liverpool), Medical Superintendent (also Consultant Tuberculosis Officer for Fylde Sub-Area).

Wrightington Hospital.

E. H. Allon Pask, M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Medical Superintendent.

Chadderton Pulmonary Hospital.

James Wood, M.D., Ch.B., D.P.H., R.C.P.S.I., Visiting Medical Superintendent (also Medical Officer of Health for the Chadderton Urban District).

Heath Charnock Pulmonary Hospital.

John W. Rigby, M.R.C.S. (Eng.), L.R.C.P. (Lond.), Visiting Medical Superintendent (also Medical Officer to the Chorley Joint Hospital Board).

Peel Hall Pulmonary Hospital.
Rufford Pulmonary Hospital.
Withnell Pulmonary Hospital.

The Consultant Tuberculosis Officers of Dispensary Areas Nos. 4, 5, and 2 respectively, are the Medical Superintendents of these Hospitals.

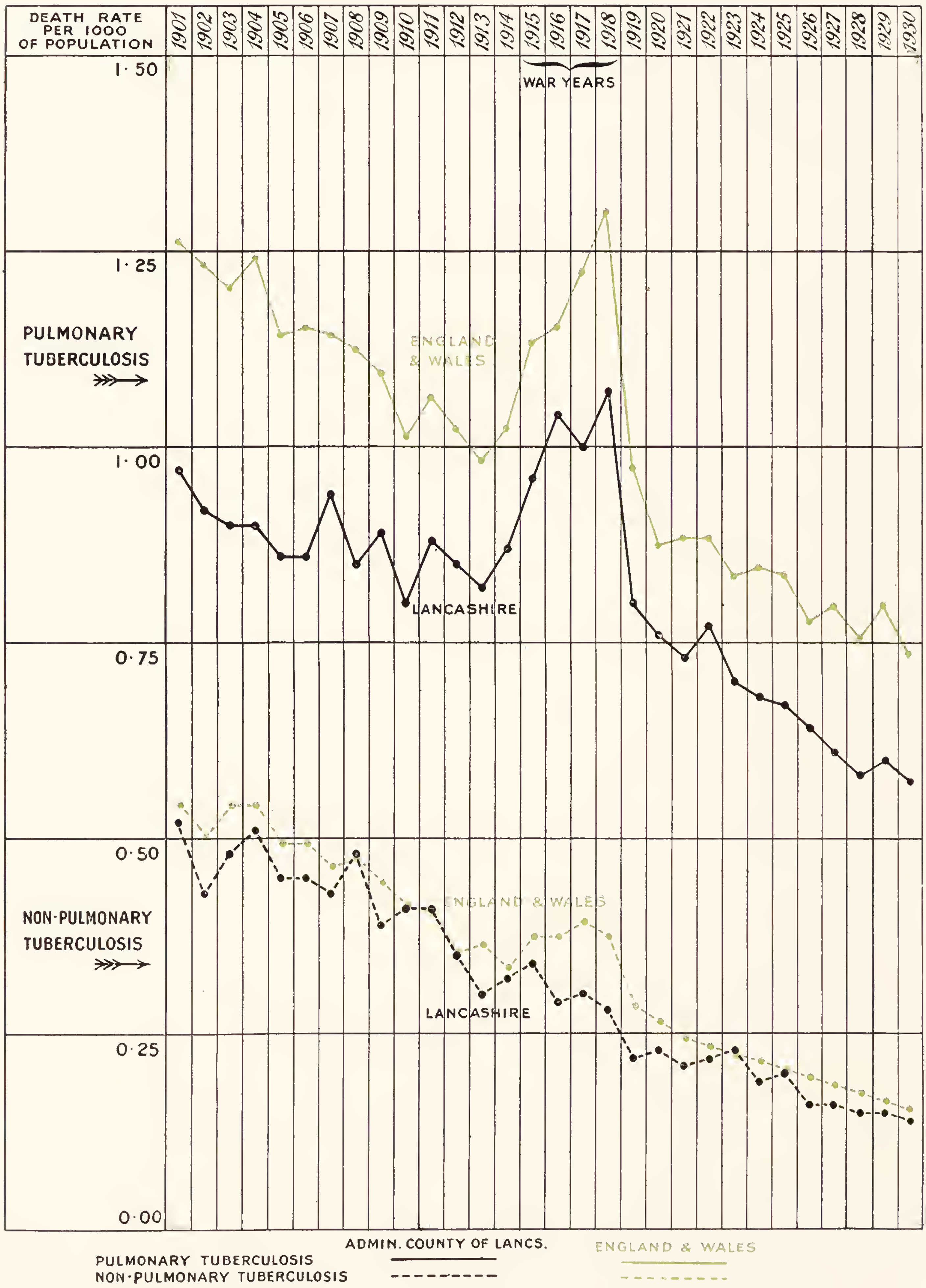
TUBERCULOSIS HEALTH VISITORS.

Dispensary Area.	Name of Nurse.	Commenced Duties.
No. 1	L. Walker* ...	6th September, 1915.
	J. Skelcher ...	26th April, 1916.
	F. D. Abbott* ...	1st July, 1919.
	G. M. Hunter ...	4th June, 1928.
No. 2	R. Lambert* ...	12th June, 1914.
	A. Munro*	5th July, 1915.
	M. Duggan* ...	30th August, 1915.
	L. F. Norwood ...	5th January, 1920.
	E. Watterson ...	19th July, 1920.
	H. M. Alcock* ...	20th February, 1925.
No. 3	M. A. Potter ...	1st June, 1914.
	H. Dewsnap* ...	7th December, 1914.
	I. F. Macdonald* ...	2nd October, 1918.
	C. Guilfoy* ...	1st July, 1919.
	A. Flynn*	1st December, 1919.
	W. Swift	4th April, 1927.
	M. Sherwen ...	3rd January, 1928.
No. 4	M. B. Jones ...	1st December, 1919.
	H. M. Shakespeare*	1st March, 1921.
	F. G. Smith ...	1st November, 1921.
	A. Dickinson ...	5th September, 1923.
	I. M. Corfield ...	1st April, 1930.
	K. Blakemore ...	1st July, 1930.
	M. Gibson* ...	8th June, 1931.
No. 5	E. Walch	15th June, 1914.
	E. Walters* ...	1st October, 1918.
	M. J. Wilson* ...	1st July, 1919.
	A. Duncan	1st April, 1924.
	L. Farquhar* ...	2nd July, 1928.
	M. J. Evans ...	1st November, 1929.
	M. J. McKeown*...	23rd March, 1931.
Furness Sub-Area	A. E. Duston ...	1st February, 1921.
Fylde Sub-Area ...	A. Tweedy* ...	17th January, 1917.

* Possesses a health visitor's or sanitary certificate.

Tuberculosis Death-Rates, 1901 to 1930.

The chart below shows the death-rates from pulmonary and non-pulmonary tuberculosis in the County, and the favourable comparison with England and Wales :—



REPORT
OF THE
CENTRAL TUBERCULOSIS OFFICER
FOR THE YEAR 1930.

To the Chairman and Members of the
Lancashire County Council.

LADIES AND GENTLEMEN,

I have the honour to submit the seventeenth annual report on the work of the tuberculosis department, and in this introductory portion will give briefly some of the principal features of the work in 1930.

Deaths from tuberculosis.

The death-rate from pulmonary tuberculosis (consumption) in 1930 is the lowest on record ; from 1923, with the exception of one year, there has been a continuous decline.

The death-rate from non-pulmonary (surgical) tuberculosis is also the lowest on record. The most remarkable decline in the deaths from non-pulmonary tuberculosis has occurred among the children aged 0–5 : in 1914 there were 286 deaths, whereas in 1930 the number had fallen to 70.

The County death-rate from tuberculosis is still less than that for England and Wales as it has always been. The experience in Lancashire may be compared with the death-rate from all forms of tuberculosis in other administrative counties with a population in the region of a million or more :—Durham, 1·06 ; Essex, 0·72 ; Kent, 0·83 ; Middlesex, 0·74 ; West Riding of Yorkshire, 0·77. The Lancashire rate is 0·71, and England and Wales 0·89.

New cases of tuberculosis.

From 1923 to 1929 there was a general fall in the new cases of tuberculosis notified under the statutory regulations, the notifications declining from 3,125 to 2,430. This rate of fall could hardly be expected to continue without an occasional setback ; in 1930 I have to report a slight increase in the number of notifications to 2,509. Of this number, 2,090 or 83 per cent. applied to the County Council for treatment under the tuberculosis scheme, which is above the average for past years. The persons who did not apply for treatment were mainly inmates of mental hospitals and other public institutions ; otherwise very few patients now fail to take advantage of treatment under the County scheme (see page 31).

Although there was a small increase in 1930 in the new cases notified, I am glad to be able to report that the notifications so far made in the current year (1931) show a big reduction on the corresponding period of previous years.

The fate of children suspected to have consumption.

On pages 5 to 7 there is a chapter devoted to research work on pulmonary tuberculosis among children in relation to sanatorium accommodation. This research was suggested by the wide differences which exist throughout England in the number of children brought on the dispensary registers as suffering from tuberculosis and the variable amount of accommodation for such children. Sir George Newman in his report for 1930 to the Ministry of Health states : "There is, undoubtedly, too great a tendency in some areas to diagnose pulmonary tuberculosis in children on slender or insufficient evidence and to give cases of this character residential treatment in tuberculosis institutions, thus putting an unfair financial burden upon the tuberculosis scheme of a local authority."

The result of the research shows that the conservative method of diagnosis by our consultant tuberculosis officers is proved to be justified ; further, the research supports the view now held by some doctors from personal observations that the ailing, sub-normal child is less liable to tuberculosis in early adult life than the healthy child.

The combination of dispensary and institutional work.

On pages 41 to 43 appears a description of the dispensary organisation of the County Council, which has provided that the consultant tuberculosis officers of the dispensary areas should also be responsible for beds in a sanatorium or pulmonary hospital in their area. In this way the dispensary side of our tuberculosis work is not divorced from the institutional side.

It is interesting to note that the West Riding County Council in March, 1931, adopted a scheme for reorganising the tuberculosis service in their area. Previously the West Riding was divided into eleven small dispensary areas each in charge of one tuberculosis officer. The reorganised scheme now provides for the creation of five large dispensary areas. The medical staff of each area will be one consultant tuberculosis officer and one or more assistants, with chief and branch dispensaries, clerical assistance, X-ray apparatus and artificial light centre. Each consultant tuberculosis officer will have control of a sanatorium or hospital containing 50 or more beds.

The West Riding scheme is now similar to the Lancashire scheme.

"Stonemasons'" disease.

The tuberculosis medical staff have continued to assist the Home Office by making initial and certain other examinations under the Silicosis and Asbestos (Medical Arrangements) Scheme, 1931, and previous similar schemes established under the Workmen's Compensation Acts, 1925 to 1930.

The consultant tuberculosis officers in dispensary areas 1, 2, 3 and 5 have, with the consent of the County Tuberculosis Committee, also undertaken certain X-ray examinations of stonemasons and quarrymen in order to aid the Home Office in an investigation into the prevalence of silicosis.

Dust in cardrooms.

G. Fletcher, M.D., M.R.C.P., the consultant tuberculosis officer at Ashton-under-Lyne, gave evidence in September, 1930, before a special committee of the Home Office on an investigation he had carried out on their behalf into the effects of dust in cardrooms of cotton mills upon the respiratory organs of the operatives. The basis of Dr. Fletcher's evidence is given in the chapter on pages 8 to 15.

Co-operation with medical practitioners, sanitary authorities, and health officials.

The results of the tuberculosis scheme would be very different if the relations with the medical practitioners in the County, together with the sanitary authorities and their medical officers and sanitary inspectors, had not been of the most cordial and satisfactory character. I take this opportunity of acknowledging such co-operation from these sources. It was very satisfactory that 87 per cent. of new cases were sent *before notification* to the tuberculosis officers for an opinion as to diagnosis.

National Association for the Prevention of Tuberculosis.

At the request of the National Association for the Prevention of Tuberculosis, Dr. F. C. S. Bradbury, one of the assistant tuberculosis officers, was given permission by the County Tuberculosis Committee to undertake the investigation organised by the Association into the high incidence of tuberculosis on Tyneside. Dr. Bradbury commenced the investigation on the 1st October, 1930, and it is expected that it will be completed by the end of 1931.

Dr. J. L. Armour, assistant at the High Carley Sanatorium, was withdrawn to undertake Dr. Bradbury's duties, and Dr. J. E. Wallace was appointed temporarily at High Carley.

Study tour in Canada and the United States.

In August and September, 1930, three of the medical staff, namely Drs. Pask, Jessel, and Leggat, were elected by the Joint Tuberculosis Council to tour Canada and the United States in order to study the tuberculosis schemes and methods of treatment in those countries. The tour was made possible by a generous grant from the Sun Life Assurance Company of Canada and by a contribution towards the travelling expenses by the County Council.

Progress and future requirements in the tuberculosis scheme.

When the Wrightington Hospital is opened for non-pulmonary cases and combined pulmonary and non-pulmonary cases, and the Lancaster Hospital is available for pulmonary cases in Area No. 1, the County scheme will be nearly complete. Matters which will require consideration in the future are larger dispensaries at Oldham and Widnes and arrangements for the provision of a pulmonary hospital in Area No. 3 to be in the charge of the consultant tuberculosis officer.

Extent and cost of the County scheme.

The tuberculosis scheme covers the whole of the Administrative County, population 1,806,960 and acreage 1,050,889. The average number of beds in use is 912, which will be increased to approximately 1,010 beds when the Wrightington Hospital is opened. There are 24 tuberculosis dispensaries owned or rented, and a total of 8,177 definite cases on the dispensary registers. The gross expenditure on tuberculosis services for 1931-32 is estimated at £193,981 less £3,145, income from various sources. During the year 1928–29 the Government paid towards the expenditure a sum of £74,105, which was equivalent to 50 per cent. of the net approved expenditure. This amount is now, however, included in the General Exchequer Grant receivable under the Local Government Act, 1929; it is not specifically allocated to the tuberculosis service but is a general credit to the County Fund.

I have again to thank my medical colleagues and the nursing and clerical staffs for continued help. I have had very valuable help from my principal clerk, Mr. H. F. Hughes, especially in preparing this report, and have, in addition, to thank the Public Health Department for furnishing certain statistics on notifications and deaths.

I am,

Your obedient Servant,

County Offices, Preston.
16*th October*, 1931.

G. LISSANT COX,
Central Tuberculosis Officer.

I.—TUBERCULOSIS MORTALITY AND INCIDENCE IN 1930.

Below is a summary of the principal features regarding tuberculosis mortality and incidence in 1930 in the Administrative County which contains an estimated population of 1,806,960 :—

1. The death-rate (0·57 per 1,000 of the population) from pulmonary tuberculosis (consumption) in the County is the lowest on record, and is below the pulmonary rate for England and Wales (see frontispiece).

2. The death-rate (0·14 per 1,000 of the population) from non-pulmonary tuberculosis is also the lowest ever recorded in the County ; it is now only one-half of the rate recorded 12 years ago.

3. The saving in human life by the reduction of the County death-rate (all forms) is very considerable ; for example, if the death-rate for 1914 had persisted in 1930 there would have been 2,150 deaths instead of the actual number of 1,299—a difference of 851.

4. Pulmonary tuberculosis is again more prevalent among males than females. Allowing for the difference in the population of the sexes, for every 100 deaths of females there were 127 deaths of males. The corresponding ratio for England and Wales is 100 female deaths to 138 male deaths.

5. Pulmonary tuberculosis was again most fatal for females between ages 15–25, after which a progressive decline took place. On the other hand, for males the most fatal age-group was 45–55, although occasionally in recent years the age-group 35–45 has furnished the highest mortality.

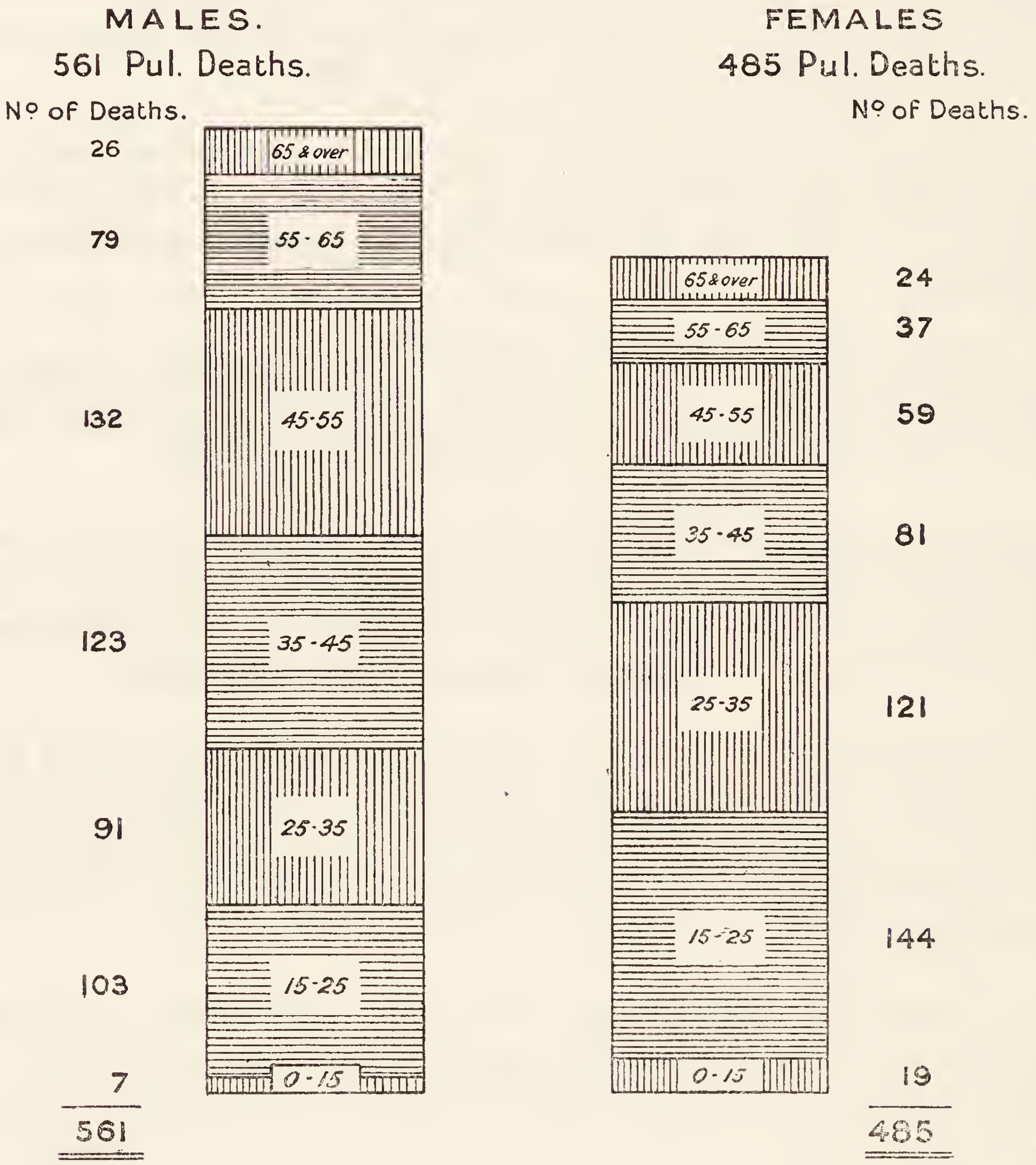
6. The most striking decline in the deaths from non-pulmonary tuberculosis has taken place in the age-group 0–5 years. In 1914 the deaths in this group totalled 286, whereas in 1930 there were only 70. The cases notified have also declined, but at a less rate.

7. The number of new cases of tuberculosis (2,509) notified in 1930 is, with the exception of 1929, the lowest on record. Compared with 1914 there has been a reduction of no less than 1,451 cases.

8. The total new known sources of infection of pulmonary tuberculosis in 1930 are again the lowest on record (see page 30).

DEATHS FROM PULMONARY TUBERCULOSIS ANALYSED ACCORDING TO SEX AND AGE.

The following diagrams show in proportion the deaths in 1930 from pulmonary tuberculosis among males and females and, further, the deaths in the various age-groups for each sex :—



ANALYSIS OF DEATHS FROM NON-PULMONARY TUBERCULOSIS.

The following statement shows the deaths in 1930 from non-pulmonary tuberculosis divided according to sex and part affected :—

	Males	Females
Bones and joints	25	22
Abdominal	20	32
Nervous system	41	48
Disseminated tuberculosis	24	26
Other organs	5	3
Peripheral glands	4	3
Total	119	134

The foregoing 119 male and 134 female deaths from non-pulmonary tuberculosis occurred in the following age-groups :—

	0–5	5–15	15–25	25–35	35–45	45–55	55–65	65 and over	Total.
Males	34	23	25	10	6	8	8	5	119
Females	36	21	21	16	14	11	6	9	134
Total	70	44	46	26	20	19	14	14	253

Cases and Deaths.

Table 1 below shows the actual number of cases notified and the deaths registered during the eighteen years 1913 to 1930 in the Administrative County :—

Year	Cases notified.			Deaths.			Death-rate per 1,000 of population.		
	Pulmonary tuberculosis	Non-pulmonary tuberculosis	Total.	Pulmonary tuberculosis	Non-pulmonary tuberculosis	Total.	Pulmonary tuberculosis	Non-pulmonary tuberculosis	Tuberculosis (all forms)
1913	2,700	1,592	4,292	1,441	527	1,968	0·82	0·30	1·12
1914	2,820	1,140	3,960	1,523	572	2,095	0·87	0·32	1·19
1915	2,872	1,128	4,000	1,614	555	2,169	0·96	0·34	1·30
1916	2,689	1,180	3,869	1,685	471	2,156	1·04	0·29	1·33
1917	2,375	1,062	3,437	1,584	466	2,050	1·00	0·30	1·30
1918	2,534	885	3,419	1,652	435	2,087	1·07	0·28	1·35
1919	2,105	847	2,952	1,339	358	1,697	0·80	0·22	1·02
1920	2,084	968	3,052	1,323	396	1,719	0·76	0·23	0·99
1921	2,044	899	2,943	1,301	376	1,677	0·73	0·21	0·95
1922	1,863	956	2,819	1,362	389	1,751	0·77	0·22	0·99
1923	1,937	1,188	3,125	1,250	412	1,662	0·70	0·23	0·93
1924	1,972	1,120	3,092	1,215	339	1,554	0·68	0·19	0·87
1925	1,846	1,027	2,873	1,205	361	1,566	0·67	0·20	0·87
1926	1,828	953	2,781	1,158	286	1,444	0·64	0·16	0·80
1927	1,794	1,045	2,839	1,105	296	1,401	0·61	0·16	0·77
1928	1,660	956	2,616	1,066	287	1,353	0·58	0·15	0·74
1929	1,517	913	2,430	1,102	279	1,381	0·60	0·15	0·76
1930	**1,527**	**982**	**2,509**	**1,046**	**253**	**1,299**	**0·57**	**0·14**	**0·71**

On superficial examination it would appear that the tuberculosis case mortality (that is, proportion of deaths to cases) was not improving, but it must be remembered that the deaths which occurred are of cases notified two, three and four years previously, which introduces the factor of " time lag." We hope in a future year to try to work out a careful case mortality allowing for the " time lag " and such further factors as sex, age and sputum result.

In Appendix I. are given the deaths and death-rates from pulmonary and non-pulmonary tuberculosis in the urban and rural sanitary districts in the Administrative County, and in the several dispensary areas.

The notifications of tuberculosis in 1930 are dealt with further in Appendix II., where folding Tables B, C, and D, are inserted, analysing them as regards the parts of the body affected, age, and sex.

II.—PULMONARY TUBERCULOSIS AMONG CHILDREN IN RELATION TO SANATORIUM ACCOMMODATION.

The establishment, with certainty, of a diagnosis of pulmonary tuberculosis among children under the age of 15 years presents much difficulty. Thus, a great deal must be left to the experience and shrewdness of the tuberculosis officer concerned.

Closely related to the number of children taken on the dispensary registers by the tuberculosis officers is the amount of sanatorium accommodation provided for the treatment of the children. In the Administrative County of Lancaster there is an average of one sanatorium bed per 8,158 of the child population (ages 0 to 15) as compared with a corresponding ratio of one bed per 4,534 for the whole of the county authorities in England and Wales.

In the Administrative County of Lancaster, therefore, the proportion of sanatorium beds for children is less than the rest of the counties, and from available figures the proportion of children accepted by the Lancashire tuberculosis officers as suffering from pulmonary tuberculosis per 1,000 of the child population is also very low. It is conceivable that among the children referred as suspicious cases by practitioners and school medical officers, many cases of the disease may be missed. If this happened, then one would expect that a number of these rejected cases would return later in life with definite disease.

To ascertain whether any unusual proportion of the rejected cases did return, I have continued the special investigation, first made last year, on the following lines :

The consecutive case sheets of 2,049 young adults (age-group 15 to 25) diagnosed by the tuberculosis officers as suffering from tuberculosis (all forms), during the years 1927, 1928, 1929 and 1930 were listed. A special enquiry was made by the dispensary staff whether at any time during childhood any of these young adults had been examined by a tuberculosis officer in Lancashire or other area and rejected as being non-tuberculous. The non-pulmonary cases were included in the investigation as they might have been referred in childhood for a chest examination.

The results of the investigation are contained in the following table :—

TABLE 2.—*Young adults coming on dispensary registers as definite cases of tuberculosis during the four years* 1927–30.

Classification.	Sex	Age at which tuberculosis diagnosed (two-year groups).						Remarks.
		15–16 years.	17–18 years.	19–20 years.	21–22 years.	23–24 years.	Total.	
(*a*) Pulmonary tuberculosis (minus)	M.	30	49	43	34	38	194	420
	F.	38	36	64	49	39	226	
Number seen by t.o. in childhood and diagnosed as non-tuberculous	M.	—	—	—	—	—	—	
	F.	2	—	—	1	1	4	Seen at ages 13, 9, 12, and 12.
(*b*) Pulmonary tuberculosis (T.B. plus)	M.	29	85	95	118	85	412	994 ; total pul. 1,414.
	F.	73	123	134	125	127	582	
Number seen by t.o. in childhood and diagnosed as non-tuberculous	M.	1	—	2	—	—	3	Seen at ages 13, 14 and 12.
	F.	4	1	1	—	—	6	Seen at ages 7, 10, 14, 13, 11 and 9.
(*c*) Non-pulmonary tuberculosis	M.	64	63	58	54	37	276	Total non-pul. 635.
	F.	80	70	78	67	64	359	
Number seen by t.o. in childhood and diagnosed as non-tuberculous	M.	3	—	—	—	—	3	Seen at ages 9, 10 and 13.
	F.	1	—	—	1	—	2	Seen at ages 10 and 11.

Thus, of 1,414 new pulmonary patients, aged 15 to 25, coming on the dispensary registers during the past four years, only 13 or 0·91 per cent., were cases which had been seen in childhood and diagnosed by the tuberculosis officers as non-tuberculous. The corresponding figure for the 635 non-pulmonary cases was 5, or 0·78 per cent.

From 1914 (when the Lancashire dispensary scheme began) to 1929, the tuberculosis officers examined some 18,100 children (excluding contacts) ; 7,460 (41 per cent.) were accepted as tuberculous and 10,640 (59 per cent.) rejected. Of the 10,640 children, a deduction of approximately 3,300 should be made for removals from the County area and for deaths from various causes. This leaves a residue of 7,340 children, the great majority of whom have attained adult age. Consequently if some of these 7,340 persons had contracted tuberculosis, most would have returned to the dispensary during the four years 1927-30. The above table shows that only 18 returned. It must not be overlooked that all the children referred to the tuberculosis officers had been suspected by medical men, and on that account the children as a whole would be sub-normal ; some of them were bound to be subjected, in the ordinary hazard of life, to the risk of infection from existing cases of tuberculosis (particularly the unknown, unnotified, and therefore unsupervised, infective case).

There is another test which may be applied to check any cases which, after rejection at the dispensary, died from pulmonary tuberculosis and were so certified without again being seen by the tuberculosis officer. An examination of the 433 deaths in the four years 1927 to 1930 of persons not notified as tuberculous during life does not reveal a single name of a person who had been rejected at the dispensaries as non-tuberculous in childhood.

The result of the investigation appears to be a justification of the conservative policy of the Lancashire tuberculosis officers in the diagnosis of pulmonary tuberculosis in children.

Related to this problem of pulmonary tuberculosis in children is the chapter commencing on page 20 dealing with the after-histories of children.

Conclusions.

The conclusions which emerge from the investigation confirm the findings published last year and may be summarised as follows :—

(*a*) The rejection of 59 per cent. of the children, aged 0 to 15 years, referred as suspicious cases, possibly tuberculous, appears to have been fully justified.

(*b*) Very few children rejected by the tuberculosis officers as being non-tuberculous in the young adult age (namely, 15 to 25 years) returned to the dispensary as definite cases of pulmonary tuberculosis. Of 1,414 young adults coming on the dispensary registers as new pulmonary cases, only 0·91 per cent. had been previously rejected in childhood by the tuberculosis officers ; the corresponding figure for the non-pulmonary cases was 0·78 per cent.

(*c*) Among the 433 non-notified fatal cases of tuberculosis recorded during the four years 1927-30, no name occurred of a person rejected in childhood as non-tuberculous by the tuberculosis officer.

(*d*) As the result of the conservative diagnosis of pulmonary tuberculosis in children, it has only been necessary to provide a few sanatorium beds in Lancashire, with consequent saving of public money.

III. THE EFFECTS OF DUST IN CARDROOMS UPON THE RESPIRATORY ORGANS OF THE COTTON OPERATIVES.

A special committee was some two years ago appointed by the Home Office to investigate the effects of dust in the cardrooms of cotton mills upon the respiratory organs of the operatives. The special committee intimated that they would be pleased to avail themselves of a contribution by one of the County tuberculosis officers to the investigation of this special dust problem, and, with the concurrence of the County Tuberculosis Committee, arrangements were made by the Home Office for 100 cardroom workers to have a thorough clinical, X-ray and bacteriological examination at the Ashton-under-Lyne Chief Dispensary by G. Fletcher, M.D., M.R.C.P., the consultant tuberculosis officer.

Dr. Fletcher completed his investigation and gave evidence before the Home Office special committee on the 25th September, 1930, and the rest of this chapter is the substance of his evidence.

Dr. Fletcher's Report on the Investigation.

At the request of the Dust in Cardrooms Committee appointed by the Home Office, arrangements were made to examine a number of cardroom operatives at Ashton-under-Lyne Dispensary. The object of the examination was to determine by clinical, bacteriological and X-ray investigation what effects, if any, employment in the cardroom has upon the lungs of the workmen.

Conditions in the cardroom. In the operation of carding the fibres of the cotton are combed so that they come to lie more or less parallel and at the same time they are freed from impurities which have escaped elimination in the preparatory stages. The final product of the carding machine is a fluffy rope of cotton called the sliver which goes to form a constituent in the finished yarn. While the carding machines are at work dust escapes into the air where its grosser elements can sometimes be seen floating in the sunlight.

The process of stripping is carried out at intervals of about three hours during the day and consists in clearing the wire teeth of the cylinder and doffer from the cotton and other debris which clog them. Stripping commonly involves the use of a vacuum extractor, or of a wire-covered brush, with an exhaust attachment. The extractor produces a minimum of dust, but the brush may give rise to dust in fair quantities. Before the year 1908, stripping was done without any exhaust appliances, and the dust raised during the process was sometimes so dense that a man on one side of the machine could hardly see his mate on the other. Since 1913, the majority of mills have employed some form of locally applied exhaust ventilation for stripping.

In the process of grinding, the teeth of the card wire are sharpened by the application of a roller covered with emery or carborundum. When first applied this roller raises a fine cloud of mineral dust which rapidly subsides.

According to Middleton(1) the dust of the cardroom is composed of fragments from various parts of the cotton, spores and other parts of mould fungi, and a variable proportion of mineral matter.

The examination. Its scope : Excluding one person, who was found to be suffering from active pulmonary tuberculosis, 100 male cardroom workers were examined.

Time : The examinations were made in the afternoon or evening during the months of May, June and July, 1930.

Age-groups. The 100 cardroom workers examined fell in the following age-groups :—

Age 35 years and under	36–40	41–45	46–50	51–55	56–60	61–65	Total
6	8	22	19	21	13	11	100

Their average ages were approximately :—

32	39	43	48	53	57	62	49

The years of employment in the cardroom were as follows : 10 years and under, 3 ; 11 to 20 years, 19 ; 21 to 30 years, 43 ; 31 to 40 years, 24 ; 41 to 50 years, 10 ; over 50 years, 1 (not now at work). The total number of years worked was 2,802, the average being 28 years. At the time of examination 16 of the 100 men had been off work for periods varying from one to eight years.

General physique. This was roughly classified as follows : Good, 25 ; fair, 67 ; and poor 8.

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(1) Middleton. Journal of Industrial Hygiene, 1926, viii, 436.

The average weights and heights in the various groups were :—

	Age 35 years and under	36–40	41–45	46–50	51–55	56–60	61–65
	st. lbs.	st. lb.	st. lb.	st. lb.	st. lb.	st. lb.	st. lb.
Weight .	9 3	10 3½	9 9	10 0	10 2	9 1	10 5½
Height .	5′ 6½″	5′ 7″	5′ 6″	5′ 5½″	5′ 5″	5′ 5¼″	5′ 5½″

In 29 cases there was noted a tendency to abdominal obesity most marked in the older groups.

Previous health. Ten gave a history of one or more attacks of "pneumonia" or "inflammation of the lungs." Twelve gave a history of one or more attacks of "pleurisy." One had had "hay fever." Four stated that they had had "mill fever" (or "cotton fever"). Eight appeared to suffer from definite asthmatic attacks. Otherwise nothing significant was noted.

Respiratory system. Nature of symptoms: Almost every man examined complained of some degree of respiratory disability, the three main symptoms being cough, expectoration and dyspnœa. Seven had no undue expectoration. Three had neither sputum nor dyspnœa. One, who had been 43 years in the cardroom, denied both cough and sputum, but admitted some dyspnœa. One had no dyspnœa.

Time of appearance of the symptoms : In the great majority of the cases the three symptoms—cough, expectoration and dyspnoea—seem to have appeared gradually and more or less together. Among the others fourteen stated that dyspnoea was the first symptom ; thirteen that cough was the first symptom ; and two that expectoration was the first symptom to appear.

From the statements made the average time that elapsed before the appearance of the first symptom was 16 years. These statements were naturally based upon memory. If the age-groups be taken separately the times elapsing before the appearance of the first symptom were : Age 35 years and under, 5 years ; age 36 to 40, 7 years ; age 41 to 45, 11 years ; age 46 to 50, 13 years ; age 51 to 55, 18 years ; age 56 to 60, 24 years ; age 61 to 65, 31 years.

Variations in the symptoms. Seasonal : In the great majority of cases (84) the symptoms were most marked in winter. In 6, summer was the most trying time. One found springtime the worst. In the remainder there was no special seasonal exacerbation.

Weekly : Ninety-three of the men stated that Monday was the worst day of the week, and that symptoms thereafter were distinctly less distressing.

Daily : Some were affected immediately on beginning work for the day, some after one or more strippings, and some only in the afternoon. Thus 53 found the forenoon the worst time and 40 were most affected in the afternoon. At least two-thirds complained of an exacerbation of the symptoms when entering the outer air on leaving work for the day.

Character of the symptoms. Cough : This appears to be gradually established and at first to produce little, if any, sputum. When fully established it is very distressing and, like all violent coughs, may be accompanied by vomiting.

Sputum : This is at first small in amount and tends to increase with the years of employment. It does not appear to differ in appearance from that of the common form of bronchial catarrh in an industrial area. It was described as white in 14 cases ; yellowish in 43 cases ; green in 4 cases ; dark in 25 cases ; grey in 8 cases. Eighteen cases stated that they had observed streaks of blood in the sputum on one or more occasions usually after a severe bout of coughing.

Bacteriological examinations of the sputum : At the dispensary the sputum was examined for tubercle bacilli. In 98 cases the examination was negative. In two cases acid fast bacilli were found in very small numbers on the first examination but were absent on a second. The cases in question showed no clinical or X-ray evidence of active pulmonary tuberculosis. A more general examination of the sputum was carried out by Dr. A. F. C. Davey, chief bacteriologist at the Public Health Laboratory of the Manchester University, and has been reported on as follows :—

AN INVESTIGATION INTO THE PREDOMINANT FEATURES IN SAMPLES OF SPUTA FROM SUFFERERS FROM THE BRONCHITIS OF CARDROOM WORKERS.

At the request of Dr. Fletcher an effort has been made to discover in the physical properties and microscopical appearances some common or distinguishing feature in samples of sputa sent in from patients under observation. The samples were collected by the patients themselves in sterile tins provided to them and forwarded to the laboratory. Ninety-six samples were sent in, of which ninety were examined. The remaining six were rejected for various reasons as being unsuitable for a report.

At the laboratory the tins were opened, the physical characteristics of the contents noted, and films made and stained by the method of Gram. These films have been examined microscopically both with the ordinary and polarising microscopes, the latter being used in an endeavour to estimate the amount of cotton fibres present. The following conclusions have been drawn from the examination of the 90 samples :

The physical characteristics do not distinguish them from samples sent in from bronchitis occurring in other groups of the population.

Microscopical observations of the cellular content do not provide any distinguishing feature.

An attempt to classify the predominant organisms as seen through the microscope was made. This estimate is of necessity a rough one because the vast majority of these cases shows enormous masses of organisms of various types ; therefore in some cases the attempt to fix on a predominate type or types failed, while in other specimens two or occasionally more types have been tabulated.

In the ninety specimens :—

Pfeiffer-like bacilli were prominent in	14
Streptococci bacilli were prominent in	35
Gram negative cocci were prominent in	26
Coliform bacilli were prominent in	2
Gram positive bacilli were prominent in	5
Pneumonococci (morphological) were prominent in	1

A search for members of the group of higher fungi produced the following results :—

Yeasts were present in	16
Filamentous non-septate forms in	11
Filamentous septate forms in	4
Filamentous with conidia in	2

There does not appear to be any distinguishing feature brought forth by this tabulation, but it is possible that the proportion showing examples of the higher fungi is greater than in samples from other varieties of bronchitis.

The search for cotton fibres by the use of the polarising microscope revealed the presence of considerable quantities in the majority of specimens, but control experiments made in the laboratory showed that this search can only be regarded as satisfactory when examination is made of the fresh specimen collected and prepared with all precautions to preclude accidental contamination.

Dyspnœa : This is at first noticed chiefly on exertion, but as time goes on it becomes a constant and marked symptom. In many cases it is accompanied by a feeling of constriction in the chest. Forty-three cases had noticed distinct wheezing in their lungs.

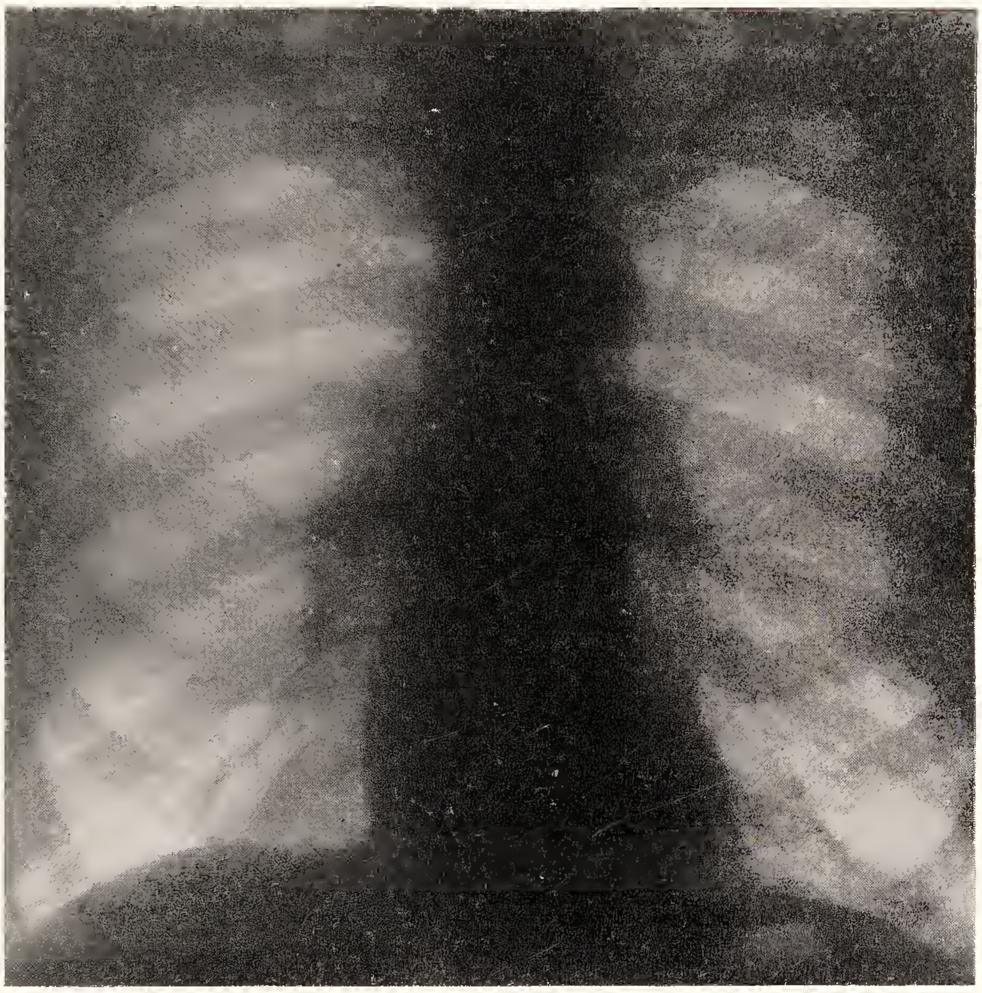
Physical examination of the chest. Inspection : Kyphosis of various degree was noted in 30 cases.

Percussion : This did not show any marked or constant departures from the normal. In one or two instances the note was marked as hyper-resonant.

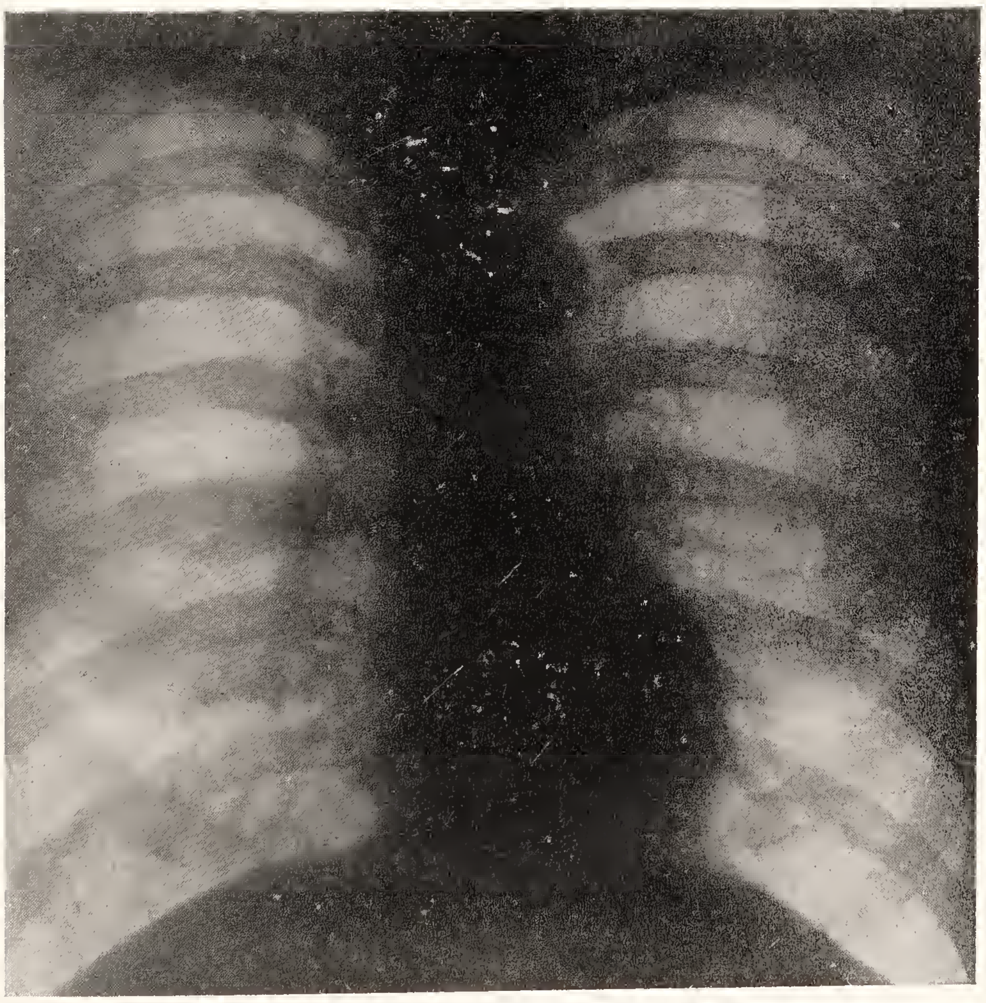
Auscultation : Deficient air entry, local or general, was noted in 34 cases. Adventitious sounds, ranging from a few basal rales or a transient rhonchus to numerous and constant rales or rhonchi, were observed in 44 cases.

Respiratory tests. The breath-rate per minute was counted. The chest expansion was taken in inches. The vital capacity was measured in litres by a spirometer of the gas meter type. The breath-holding test was carried out by means of a seconds clock. The maximum expiratory effort was taken in millimetres of mercury by means of a Riva Rocci sphygmomanometer.

SKIAGRAMS OF CARDROOM WORKERS' CHESTS.



No. 1. Cardroom worker S.N. Male, aged 64, 46 years in cardroom, 31 years being without and 15 years with exhaust ventilation arrangements. Skiagram shows the root shadows are practically normal.



No. 2. Cardroom worker M.T. Male, aged 52, 33 years in cardroom, 15 years being without and 18 years with exhaust ventilation arrangements. Skiagram shows abnormal root shadows, which appearances are associated with chronic inflammation of the lungs (bronchitis). This person has worked in a cardroom for a shorter period than worker S.N. above.

[*Skiagrams taken by Dr. Fletcher at Ashton-under-Lyne Dispensary.*]

In the various age-groups the results obtained were as follow :—

	Age 35 years and under	36–40	41–45	46–50	51–55	56–60	61–65
Breath-rate	21	24	24	23	23	21	26
Expansion	2¾″	2½″	2¼″	2″	2″	2″	1½″
Vital capacity	3·5	3·05	2·5	2·3	2·3	2·2	1·5
Breath-holding test	26½	26	19	18	20	22	15
Maximum expiratory effort	85	85	78	83	66	76	70

With regard to the last three tests, it may be of interest to note that in the Air Service, which, of course, accepts only young men who are exceptionally fit, the average standard for a flying officer is stated to be—vital capacity, 3·8 litres ; breath-holding test, 66 seconds ; maximum expiratory effort, 110 mm. Hg.

X-ray examination of the chest. Screening was directed chiefly to observing the illumination and the degree of diaphragm movement. The results were :—

	Illumination.	Diaphragm movement.
Good	48	33
Fair	38	37
Poor	14	30

Of the 14 in whom the illumination was marked poor, 10 were distinctly stout.

A skiagram was taken in every case. The root shadows were more than usually distinct in the majority of the cases. The lung markings (bronchial shadows) were likewise accentuated in many. The notes made were as follow : Root shadows : heavy 55 ; very heavy 7 ; lung markings : heavy 55, very heavy 9.

To illustrate the difference in degree of the effect of the cardroom conditions on the chests of persons who have been employed for many years in the mill, two skiagrams are here reproduced : in No. 1 the root shadows are almost normal after 46 years' employment while in No. 2 the root shadows are abnormal despite the fact that this person has worked in a cardroom for 33 years—13 years shorter.

In 27 cases irregularity in the contour of the diaphragm was noted. In 40 cases there was lack of definition of one or both of the cardio-phrenic sulci. In 77 cases some degree of ossification of the rib cartilages was noted from the incipient stage onwards. In the great majority the degree of ossification was very slight.

Cardio-vascular system. Physical examination : Two cases had a slight systolic bruit. The heart sounds were noted to be poor in two cases. In four cases the first mitral sound was found to be accentuated or impure. In twelve cases the second aortic sound was accentuated and in two the second pulmonic.

The pulse and blood pressure findings in the various age-groups were as follow :—

	Age 35 years and under	36–40	41–45	46–50	51–55	56–60	61–65
Pulse	79	98	86	90	83	90	95
Blood pressure	132	138	143	150	158	154	182

X-ray examination revealed nothing distinctive in the shape or size of the heart.

Gastro-intestinal system. The teeth were artificial in 41 cases. In 44 cases they were ineffective, poor or carious.

Eighteen cases had dyspeptic symptoms of various kinds conforming to no special type, nine cases complained of constipation, one of a tendency to diarrhoea, and one of occasional attacks of colic.

Urine. Examination revealed no constant finding. A trace of albumen was noted in seven cases.

Temperature. This showed nothing decisive. The great majority of cases were within normal limits. In ten cases the temperature was 99°F. or above, being 100·8° in one case.

Nervous system *Skin* *Lymphatic system* *Special senses*	There were no complaints pointing to any special affection of any of these systems.

Summary and Conclusions.

The results of the investigation would seem to show :—

1. That employment in the cardroom is attended by an excessive degree of respiratory disability, the main symptoms of which are cough, sputum and dyspnoea.

2. That these symptoms are established only after years of exposure, and that the final condition of the chest is one of bronchitis and emphysema with, in a few cases, asthma as a complication.

3. That the chest condition does not differ essentially from that accompanying chronic bronchial catarrh in an industrial area. In

the case of the cardroom worker the symptoms are distinguished by a weekly cycle, being most marked in the majority of cases on Monday and lessening as the week goes on.

4. That the X-ray findings differ from those of chronic bronchial catarrh only in a degree, the lung markings and the root shadows being in many cases, but not in all, more markedly and constantly enhanced than one would expect in cases of pure chronic bronchial catarrh.

(*Signed*) G. FLETCHER.

IV.—NEW METHODS OF TREATMENT.

The County Council have adopted the policy of encouraging the tuberculosis medical staff, in addition to their ordinary duties, to engage in research work, and to give trials to the various new methods of treatment of the disease which are, from time to time, recommended as " cures " for tuberculosis, provided, of course, that there are one or more patients prepared voluntarily to co-operate in the experimental work. The Council have voted a sum of £200 per annum for research work during the past few years. This sum may appear small for the purpose, but it must be remembered that the resources of the County tuberculosis scheme (*e.g.*, services of staff, use of premises, laboratory facilities) are available without any charge against the research fund. Further, new preparations are often offered for trial free of charge.

New methods of treatment are tried generally on patients at County sanatoria and hospitals, as it has been found more satisfactory to have the patients under the constant supervision, care and control of the medical superintendent and his staff.

I reported in 1928 and 1929 that the following 19 methods of treatment had been tried :—

(1) Alipoid T.B.E. (Prof. Dreyer).
(2) Dr. Paget's insufflator.
(3) Pneumosan.
(4) Endocrine substances.
(5) Yadil.
(6) Mr. Stevens' drug (Umckaloabo).
(7) The " Newell " preparation.
(8) Prof. Gabrilovitch's Phagolysine.
(9) Sodium Morrhuate.
(10) Colloidogenine.
(11) Angiolymphe.
(12) Ostelin.
(13) Nascent iodine.
(14) Casco.
(15) Friedmann's vaccine.
(16) Tuberculin B.E. (Parke Davis).
(17) Dr. Jenkins' vaccine.
(18) Sanocrysin.
(19) Irradiated milk.

With the exception of (18), in none of these trials could it be said that the preparation used had any good influence on the progress of the patients.

In regard to (18) Sanocrysin treatment, the following further report is furnished :

(18) SANOCRYSIN TREATMENT.

Sanocrysin treatment of patients at High Carley Sanatorium and Peel Hall Pulmonary Hospital was reported upon fully last year by Dr. Pask and Dr. Jessel, the medical superintendents of the respective institutions. This form of treatment has been continued and further reports have been received from the two medical superintendents, but as the reports vary little from last year it is only necessary on this occasion to give a summary :—

Summary of Dr. Pask's report.

Sanocrysin treatment is the most useful adjunct to sanatorium treatment next to artificial pneumothorax, this opinion being based on a trial of the drug on a total to date of 28 patients at the High Carley Sanatorium.

Reactions may be reduced to a minimum by careful spacing of the doses and increasing them slowly. Its use in any specific case should not be abandoned without a careful trial.

The rate of fall in the red blood cells, as revealed by sedimentation tests, is considerably retarded after Sanocrysin treatment, the average rate of retardation being 18 per cent. in the Sanocrysin cases as against 4 per cent. in cases receiving sanatorium treatment alone.

There is a definite improvement in the X-ray picture after Sanocrysin in a large proportion of cases.

It has a definite effect on the sputum in causing the disappearance of tubercle bacilli ; the Sanocrysin cases showed a bacillary loss of 52 per cent. compared with 20 per cent. for cases receiving sanatorium treatment alone.

The effect of Sanocrysin is to a certain extent lasting ; of 15 patients who completed a course of this treatment twelve months or more ago, 6 are at work ; and of 7 positive cases which became negative the sputum is still negative in 4.

Summary of Dr. Jessel's report.

In the last report I referred to 25 male patients with acute bilateral disease who had completed a course of Sanocrysin treatment ; 14 of these showed definite clinical improvement while the condition of 11 was unaffected or worse. During 1930, 10 patients completed a full course and 5 of them showed obvious improvement. Altogether at the end of March, 1931, 33 patients had had a full course of Sanocrysin treatment ; 20 of these showed definite clinical improvement, whilst 13 were unaffected or worse. Having regard to the fact that the patients were bilateral febrile cases with positive sputum these results may be regarded as reasonably encouraging. On the other hand, in a number of cases the treatment was discontinued after two or three doses as its use was obviously contra-indicated. It is helpful to some patients whose condition precludes artificial pneumothorax, but it is useless for very advanced acute cases with poor resistance. Sanocrysin, appears to act by virtue of a stimulating action, which varies in intensity, and its exhibition implies a certain power of response on the part of the patient. The technique has been the same as recorded last year, *viz.*, weekly intravenous injections in sterile normal saline of 0·10, 0·20, 0·35, 0·50, 0·60, 0·75, and 1·00 gr. sometimes repeated.

The following additional methods of treatment have been tried since the last report :—

(20) SANTUBEN.

Dr. A. D. Brunwin, Area No. 1, reports that he is trying Santuben, a tuberculin ointment prepared by Professor von Eisner of Berlin, on several patients under dispensary supervision in his area. He finds, so far, that the results claimed for this preparation have not been altogether substantiated. He is now giving the ointment in smaller doses to patients in the early stages of the disease, and in such cases apparently it has some good effect.

(21) SOLGANOL.

Dr. Pask, High Carley Sanatorium, reports :—

Solganol is a preparation described by the makers (Messrs. Schering, Ltd.) as an organic gold preparation, but no information is given as to its composition. It is a yellowish-brown powder and is administered intravenously, the dosage being much the same as for Sanocrysin, than which it is claimed to be less toxic. It has been tried on four cases at High Carley and did not cause any reaction beyond, in one case, a rise of temperature on the day following the injection. There did not appear to be any beneficial results from its use and it was discontinued.

(22) CALCIUM (LIME).

Dr. G. Leggat, Elswick Sanatorium, reports as follows :—

It is well known that the end result of a tuberculous lesion, whether pulmonary or non-pulmonary, is very often calcification. Realising this, various authorities have tried the effect on tuberculosis of calcium medication. Like others, we have never found at Elswick any definite effect on pulmonary cases from the administration of calcium, either orally or by injection, in its most absorbable form as one of the colloidal preparations. Several cases in the past have been treated at Elswick, but X-ray control has never revealed any increase of signs of calcification in the lungs, nor did it appear to have any direct bearing on the progress of the disease. We know that coal dust can reach the lungs by inspiration, and produce anthrocosis ; similarly, particles of silica can produce silicosis. From these facts one would naturally come to the conclusion that calcium could reach the lungs by a similar route. I communicated my views in the matter to Messrs. Parke, Davis & Co., Ltd., London, and they kindly supplied me with two calcium salts—calcium carbonate and calcium stearate (the two least absorbable of the calcium salts)—in a very fine amorphous powder, and experiments are now being conducted with these by direct inhalation, to see whether any beneficial effect can be produced. According to published statistics, pure calcium workers have a low incidence of tubercle and respiratory diseases generally.

In continuing the trial of this method of treatment I have been somewhat restricted in the selection of suitable cases owing to the exigencies of the accommodation, and the concentration on cases suitable for surgical methods. There are now six cases having calcium treatment but I am not yet in a position to complete my report on this form of treatment.

Dr. A. D. Brunwin, Area No. 1, sends the following report :—

Deficiency in calcium has long been known to occur in tuberculosis, and the treatment by calcium orally and also by hypodermic injection in the form of collosal calcium has been tried by various observers whose good results I have not been able to confirm. One difficulty is that calcium is only retained in the system for a very short time. To overcome this I have given it in conjunction with parathyroid extract, which has been shown to " fix " the calcium in the pleura. However, the effect of the combination in tuberculous disease seemed to be negative. It has been stated that workers in chalk and lime very rarely contract tuberculosis, the calcium being inhaled directly into the lungs and absorbed into the lymphatics lining the alveoli, where the particles not only remain for a considerable time but are in close contact with the tuberculous lesions. This is not the case when calcium is given orally or subcutaneously. An article appeared some time ago in the American *Medical Journal and Record* in which the author claimed good results from the inhalation of calcium dust. This was given up to one or two hours each day by means of an electric insufflator. I tried to get into communication with the author but failed to do so. It struck me, however, that the expense of the apparatus and its restriction to houses with electric power would have militated against its usefulness. Some time afterwards Dr. Leggat, of Elswick Sanatorium, informed me that he was using calcium dust, and that Messrs. Parke, Davis & Co., Ltd., had prepared a specially fine powder in the form of calcium stearate and calcium carbonate. He was giving this chiefly by means of a nasal insuflator and for short periods. I then decided to try a method which was a mean between the intensive American method and Dr. Leggat's experiment. I had an insufflator made by Messrs. Allen & Hanbury to my specification, consisting of a rubber ball, a glass chamber for the calcium, and a mask to fit over the mouth. I tried the apparatus on myself and though the calcium dust caused some coughing, the method was not unduly unpleasant.

The treatment has since been tried on six patients. One, an almost hopeless case, died, but I certainly think the others improved ; one quite advanced case has since returned to work.

The experimental use of this treatment is still continuing. One of the insufflators was left at Heath Charnock Hospital and Dr. Rigby, the medical superintendent, has recently asked for two more.

The powder is inhaled for five minutes twice daily but it is possible that the period might be increased with advantage. The patients carry out the treatment themselves. The experiment is rather difficult because I have not a sanatorium directly in my charge, but I think this method of calcium treatment is worth a further trial.

(23) CALCIUM AND IODINE THERAPY.

A trial of this method of treatment was made by Dr. Pask at High Carley Sanatorium on 16 cases. Crookes' collosal calcium was injected intramuscularly in doses of 0·5 cc. at weekly intervals. Iodine (free from potassium iodide) was administered by mouth in the form of iodised cod-liver oil cream (prepared by Thomson of Elgin). A dessertspoonful of the cream, containing three minims of tincture of iodine, was given three times a day.

The 16 cases consisted of six males and ten females and were classified as follows : T.B. minus, four cases ; T.B. plus 1, three cases ; T.B. plus 2, four cases ; and T.B. plus 3, five cases.

The period of treatment in each case was three months. Careful comparisons before and after the course were made of the following criteria : Physical signs, X-ray appearances, weight, sedimentation rate, temperature, pulse rate, blood pressure, sputum, and subjective sensations.

It may be said at once that none of the T.B. plus 3 (advanced cases) group derived any benefit whatsoever from the treatment with the exception of one case (the least severe of the group) in whom a previously stationary weight increased by 3½ lbs. and the sedimentation rate improved by 7 per cent. In two of the cases a pre-existing tendency to diarrhœa appeared to be aggravated during the course.

All the remaining 11 cases increased in weight, the average gain being 7 lbs. as compared with an average gain during the preceding three months of only 1 lb. This was probably due almost entirely to the administration of the cod-liver oil cream.

Eight of these 11 cases reported definite improvement in their sense of well-being, increase of energy and a keener desire for food being the most marked features. It is worthy of note that there was a general request at the end of the three months for a continuation of the treatment.

The sedimentation rate improved in six cases, remained stationary in three, and was worse in two.

X-ray appearances indicated that there was some retrogression of the disease in four cases, in one of which early calcification was observed.

The sputum was unchanged either in quantity or bacillary loss.

The remaining factors—physical signs, temperature, pulse rate, and blood pressure—presented the usual slight fluctuations common to most cases of pulmonary tuberculosis, but no evidence was obtained that they were in any way influenced by the course of treatment.

Conclusions : 1. Calcium and iodine therapy has been found of no value in five advanced cases at High Carley.

2. In the less severe types of the disease the beneficial effects are confined to the improvement in the patients' general health and an increase in weight.

3. A course of this treatment is recommended as a useful adjunct to sanatorium routine in those cases where the weight chart is unsatisfactory and the patient himself has become mentally and physically apathetic.

(24) GERSON TREATMENT.

The Ministry of Health suggested that a trial of a new method of treatment for tuberculosis might be made at the High Carley Sanatorium, the cost being borne out of a Government grant for research. The new treatment in question is a salt-free diet advocated by Dr. Max Gerson, of Cassel, and other research workers in Germany. The County Tuberculosis Committee agreed to the Ministry's suggestion and Dr. E. H. Allon Pask, the medical superintendent, in June 1931, proceeded to Germany to investigate the technique of the treatment ; his report has been made to the Ministry.

In addition to the foregoing 24 methods of treatment, there are the better known methods of artificial pneumothorax, phrenic evulsion and artificial light, which are dealt with elsewhere in the report (see index).

V.—AFTER-HISTORIES OF CHILDREN SUFFERING FROM PULMONARY TUBERCULOSIS.

Pulmonary tuberculosis is not a form of the disease which is common among children under the age of 15 years ; indeed, up to the age of 12, it is comparatively a rare occurrence to find a case with a positive sputum. Of the new cases of pulmonary tuberculosis coming on the dispensary registers only six per cent. are children.

This year I have had worked out the after-histories of the children who came on the dispensary registers during the six years 1922–24 and 1925–27 for treatment of pulmonary tuberculosis and the results are tabulated below. Most of the children have, of course, now attained adult age, the oldest being 22 years. No attempt has been made to divide the cases into groups according to whether they received institutional treatment or simply home treatment.

Table 3.

(*a*) Children first treated during the years 1922–24.

Age-group. Years.	Sex.	Position at end of 1930.							
		Negative or absent sputum cases.				Positive sputum cases.			
		Net No. *	Recovered, arrested or quiescent. †	Disease active.	Died from tuberculosis.	Net No.	Recovered, arrested or quiescent.	Disease active.	Died from tuberculosis.
0–3	M	5	1 *(1)*	—	4	—	—	—	—
	F	2	1 *(1)*	—	1	—	—	—	—
3–6	M	14	8 *(4)*	1	5	1	—	—	1
	F	14	9 *(7)*	1	4	—	—	—	—
6–9	M	34	26 *(15)*	4	4	1	—	—	1
	F	42	35 *(25)*	2	5	3	—	—	3
9–12	M	50	42 *(31)*	3	5	5	1	—	4
	F	52	40 *(21)*	1	11	10	—	3	7
12–15	M	25	18 *(15)*	1	6	9	1	1	7
	F	35	26 *(18)*	—	9	41	2	2	37
TOTAL ..	M	128	95 *(66)*	9	24	16	2	1	13
	F	145	111 *(72)*	4	30	54	2	5	47
Grand total & percentages.	M & F	273	206 *(138)* 75·4%	13 4·8%	54 19·8%	70	4 5·7%	6 8·6%	60 85·7%

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* Net number arrived at after deducting patients left County, untraced, ceased treatment for other than medical reasons, and died from other than tuberculosis.

† The small italic figures in brackets denote cases written off the register as recovered.

(*b*) Children first treated during the years 1925–27.

Age-group. Years.	Sex.	Position at end of 1930.							
		Negative or absent sputum cases.				Positive sputum cases.			
		Net No.	Recovered, arrested or quiescent.	Disease active.	Died from tuberculosis.	Net No.	Recovered, arrested or quiescent.	Disease active.	Died from tuberculosis.
		*	†						
0–3	M	3	— —	—	3	—	—	—	—
	F	3	— —	1	2	—	—	—	—
3–6	M	20	13 *(1)*	4	3	—	—	—	—
	F	14	7 —	5	2	1	—	—	1
6–9	M	45	39 *(1)*	4	2	1	1	—	—
	F	48	30 *(3)*	13	5	7	1	3	3
9–12	M	45	39 *(3)*	6	—	5	—	3	2
	F	43	32 *(2)*	7	4	8	1	—	7
12–15	M	46	38 *(3)*	7	1	13	2	2	9
	F	44	31 —	4	9	32	3	—	29
TOTAL ..	M	159	129 *(8)*	21	9	19	3	5	11
	F	152	100 *(5)*	30	22	48	5	3	40
Grand total & percentages.	M & F	311	229 *(13)* 73·6%	51 16·4%	31 9·9%	67	8 11·9%	8 11·9%	51 76·1%

* Net number arrived at after deducting patients left County, untraced, ceased treatment for other than medical reasons, and died from other than tuberculosis.

† The small italic figures in brackets denote cases written off the register as recovered.

The patients classified as having a positive sputum are those whose sputum has been positive any time during life. This method of classification does not show, however, at what period of treatment the sputum became positive, and as this is a matter of some interest I give the following ancillary table for the 70 positive cases first treated in 1922–24 :—

TABLE 4.

Number of children, first treated in 1922–24, whose sputum was positive.	Sputum became positive—					
	At commencement of treatment or in 1st year.	In 2nd year.	In 3rd year.	In 4th year.	In 5th year.	In 6th to 9th years.
70	58	6	2	—	2	2

The following conclusions may be drawn from the investigation into the after-histories of children who received treatment for pulmonary tuberculosis :—

Conclusions.

1. Of 273 children under the age of 15, with negative or absent sputum, who first received treatment for pulmonary tuberculosis in 1922–24, 75 per cent. were at the end of 1930 fit and well, having the disease arrested or quiescent or being written off the register as recovered. Similarly, of 311 children first receiving treatment in 1925–27, 73 per cent. had progressed to recovery, arrest, or quiescence. These results may be regarded as satisfactory and encouraging, particularly in view of the great care exercised by the tuberculosis medical staff in making a diagnosis of pulmonary tuberculosis in children.

2. With regard to the children with positive sputum, the tables show the unfavourable after-results which emphasize the importance of the disease being detected before the sputum becomes positive when the chances of recovery are much better. Most of the positive sputum cases in children occur between the ages of 12 and 15 and then particularly amongst girls, who at this age are approaching puberty ; before the age of 12 it is comparatively rare for a child to have a positive sputum.

3. Dealing further with the children whose sputum was positive, it has been found that such positive result occurs at the commencement of treatment or within twelve months in 82 per cent. of the cases.

Comment.—The treatment of the older children and young adults with positive sputum has so far produced results much less satisfactory than the results for groups of other ages. Greater attention is now being paid to the treatment of these cases by surgical methods, such as artificial pneumothorax and phrenic evulsion.

VI.—SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS BY PHRENIC EVULSION.

Thoracic surgery has assumed considerable and increasing importance. One of its simplest forms, namely, artificial pneumothorax, has for some years been induced at the various County sanatoria and hospitals by the medical superintendents, followed by refills at the dispensaries, and full reports with illustrations have been given in previous years.

When a satisfactory collapse of the lung occurs good results are achieved. There are, however, occasions when a collapse of the lung is not possible owing generally to pleural adhesions ; in some of these cases phrenic evulsion has been performed, and many sanatoria and hospitals in this country and abroad report satisfactory results by this operation.

Phrenic evulsion consists in the removal of as much as possible of the phrenic nerve where it passes from the neck into the thorax, in order to put out of action one side of the diaphragm and assist in the collapse of the affected lung. The County Tuberculosis Committee in December, 1930, approved the appointment of Mr. Morriston Davies, M.D., F.R.C.S., of the Vale of Clwyd Sanatorium, Ruthin, as visiting consulting surgeon to the County sanatoria. The Elswick Sanatorium and the Rufford Pulmonary Hospital already had an operating theatre suitably equipped ; at the Peel Hall Pulmonary Hospital an operating room and the necessary equipment were provided early in 1931. Mr. Morriston Davies, commencing in April, 1931, had up to the 31st July, 1931, with the assistance of the medical superintendents, performed the operation on 21 patients.

The following preliminary reports have been received from Dr. Jessel and Dr. Leggat together with notes on cases illustrated by skiagrams :—

Report by Dr. Jessel, Peel Hall.

The opening of a suitable operating room has enabled a beginning to be made in the surgical treatment of selected cases, and the first phrenic evulsion was performed by Mr. Morriston Davies on the 24th April, 1931. By the end of July eight patients had received this treatment and the accompanying Table 5 gives particulars as to the reasons for same and the condition of the sputum before and afterwards :—

Hospital No.	Reason for evulsion.	Sputum	
		Before	After
1271	Extensive adhesions preventing a satisfactory artificial pneumothorax	T.B. Plus	T.B. Plus
1348		T.B. Plus	T.B. Minus
1356		T.B. Plus	T.B. Plus
1358		T.B. Plus	T.B. Plus
1367		T.B. Plus	T.B. Minus
1322	Basal disease of lung. Having artificial pneumothorax also	T.B. Plus	T.B. Minus
1297	Cardio-phrenic adhesions and slight evidence of fluid. Having artificial pneumothorax.	T.B. Minus	T.B. Minus
1193	Effusion during course of artificial pneumothorax. Repeated gas replacements	T.B. Plus	T.B. Minus

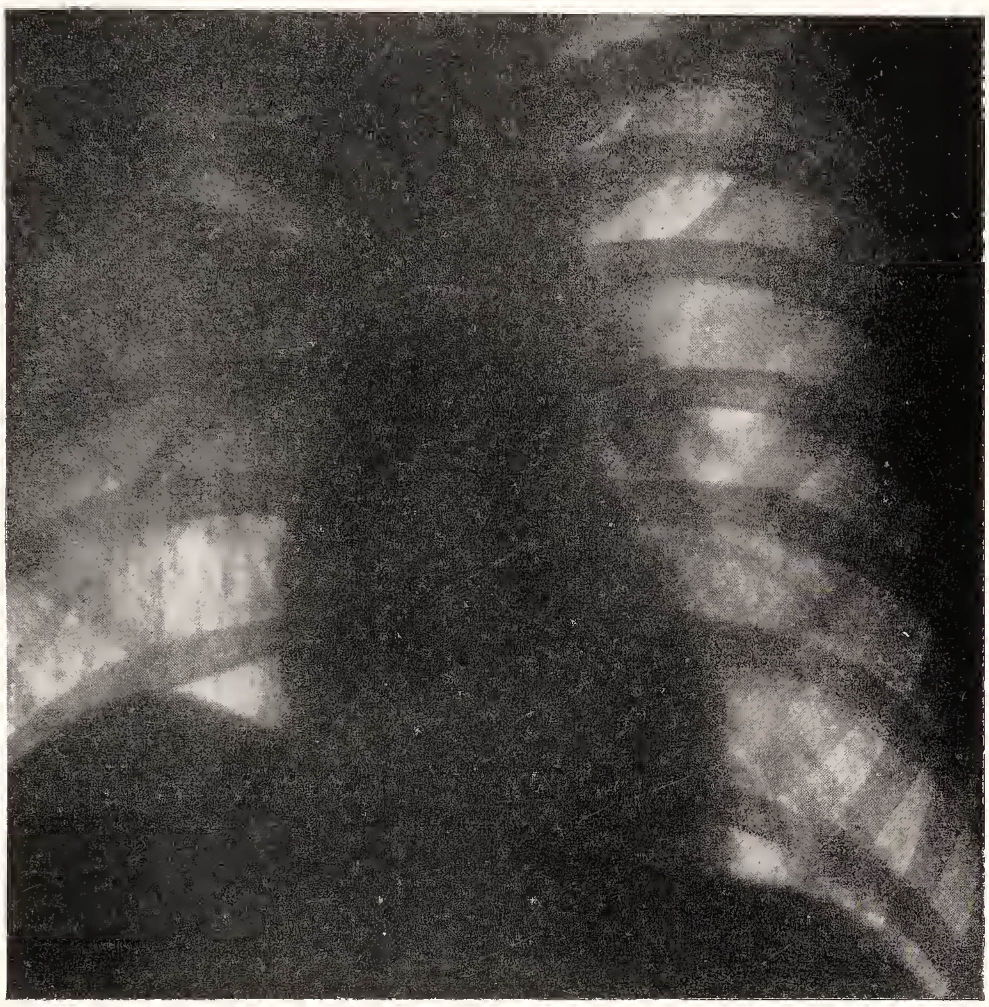
Thus, in five of the eight cases the reason for the phrenic evulsion was inability to obtain a successful artificial pneumothorax owing to the presence of extensive adhesions. In the other cases the reasons were basal disease of lung, cardio-phrenic adhesions with slight effusion, and repeated effusions. These three latter cases had had artificial pneumothorax previously.

Seven of the eight cases had tubercle bacilli in their sputum and in four of these the bacilli disappeared after the operation. The general effect of the evulsion, *viz.*, raising of the diaphragm on the affected side due to paralysis of the corresponding dome is seen in the accompany-skiagrams (P.E. 1(a) and 1(b)) of an illustrative case. This gave rise to a partial collapse of the affected lung, chiefly at the base, and there was a general improvement in the symptoms and condition of the patients after the evulsions. As, however, all the patients, with one exception, were under a sanatorium régime, it is not claimed that the whole of the noticeable improvement was the direct result of the phrenic evulsion. It is, however, significant that no difficulty was experienced in inducing patients to receive this treatment at Peel Hall. Local anæsthesia has been used, and the resultant scars in the neck were insignificant.

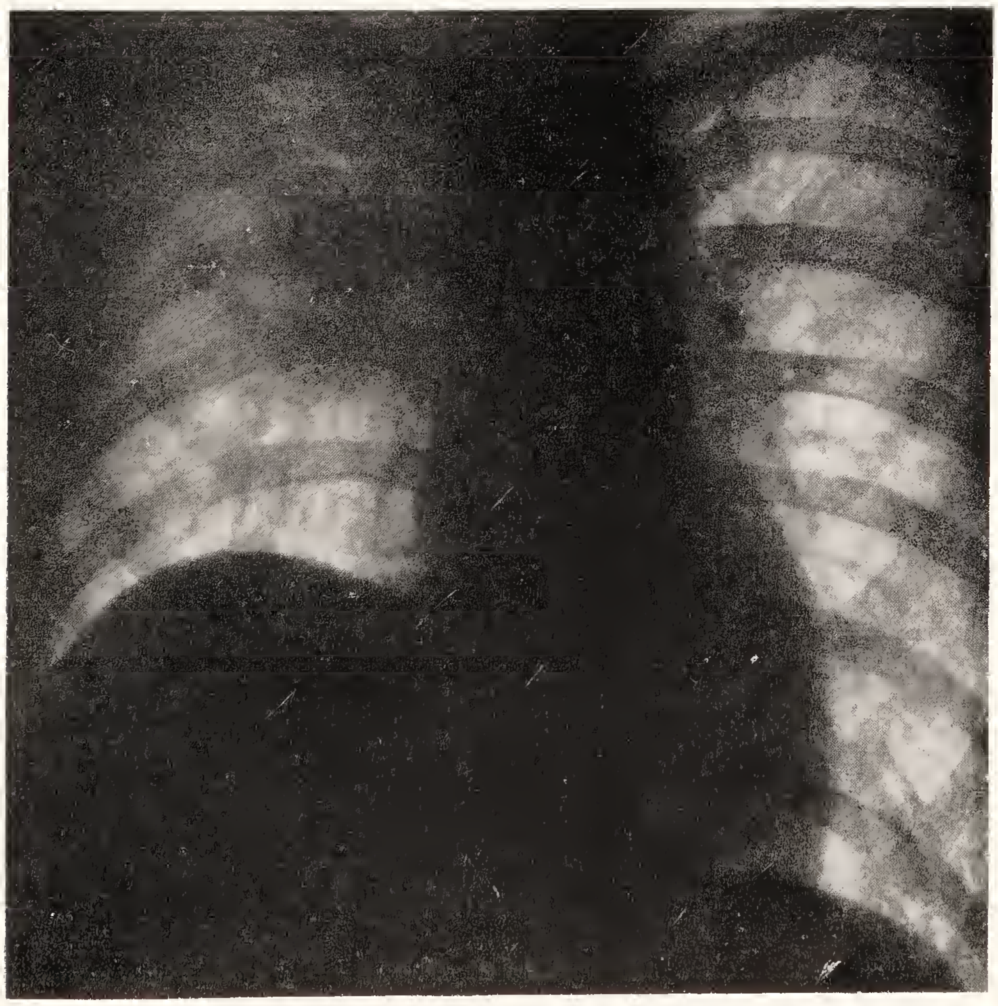
REPORT BY DR. G. LEGGAT, ELSWICK.

The operation of phrenic evulsion has been carried out by Mr. Morriston Davies on 13 patients ; 7 were Elswick Sanatorium patients, the other 6 being transferred for operation from other County

SKIAGRAMS ILLUSTRATING PHRENIC EVULSION.

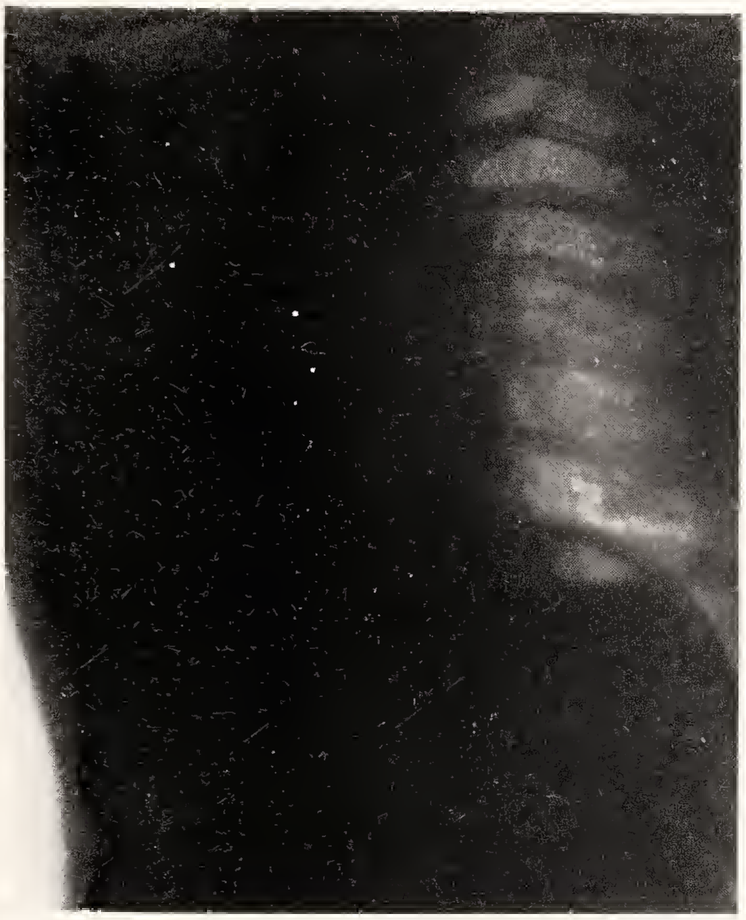


P.E.1(*a*).—Patient A.MacD., aged 32, male, sputum positive. Admitted Peel Hall, 11/6/31. Skiagram taken 12/6/31, shows extensive mottling upper two-thirds of right lung and scattered infiltration of left lung. The appearances suggest old standing disease mainly on the right side. Artificial pneumothorax impossible owing to the existence of extensive adhesions between the affected lung and the chest wall.

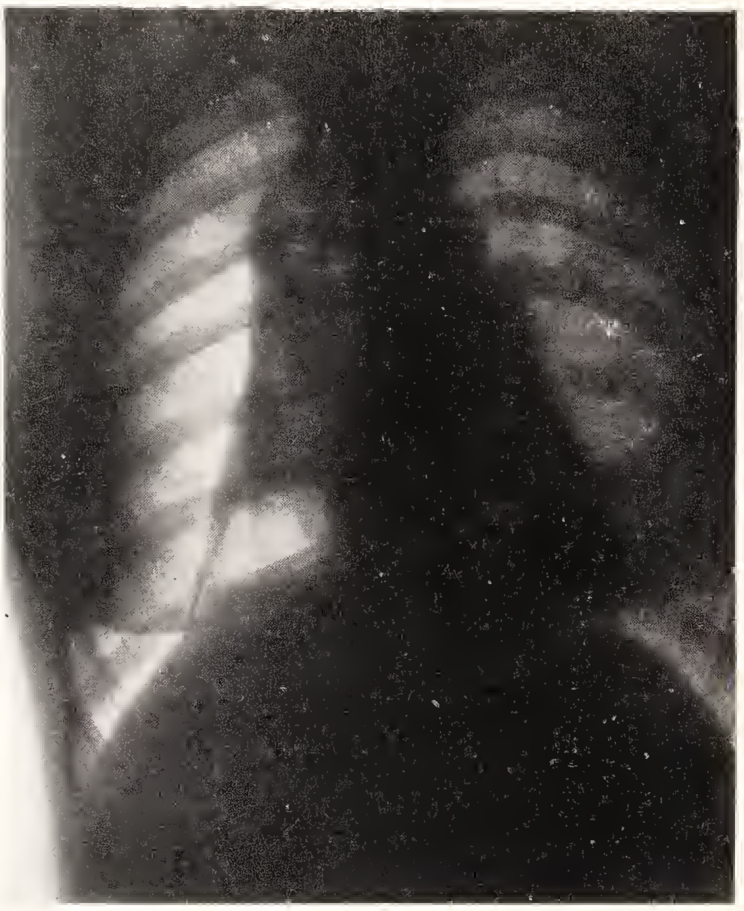


P.E.1.(*b*).—Same patient. Skiagram taken 17/7/31 after phrenic evulsion. Note marked rise of right diaphragm. Patient still undergoing treatment at Peel Hall. Condition improved, and sputum become negative.

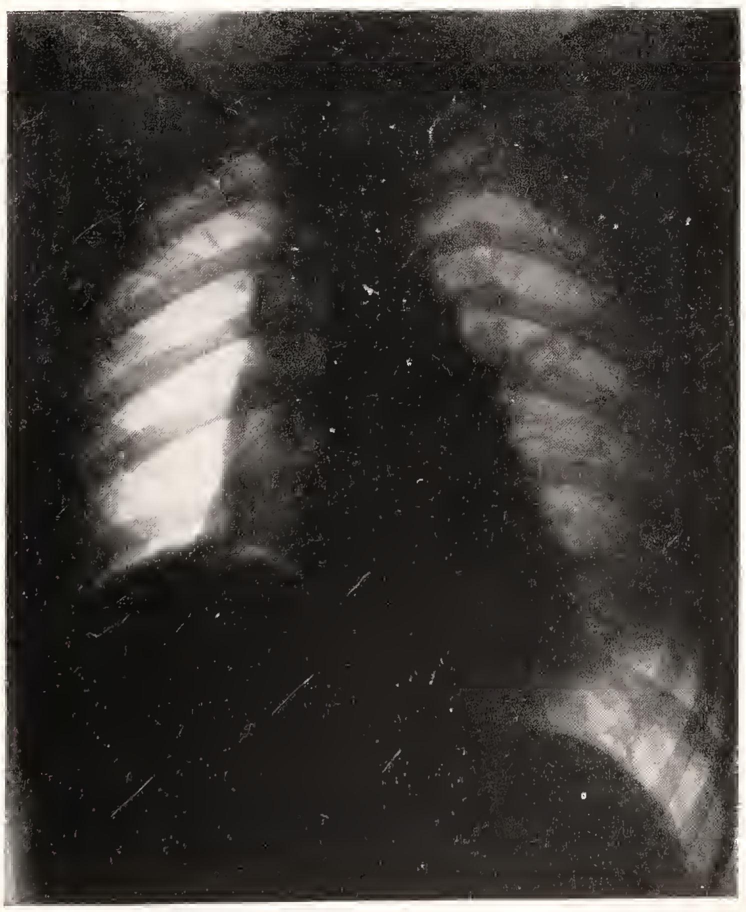
[*Skiagrams taken by Dr. Jessel at Peel Hall Pulmonary Hospital.*]



P.E.2(*a*).—Patient A.A.S., aged 30, female. Duration of disease, 4½ years. Skiagram taken 23/2/31 shows dense shadowing over the whole of the right chest, heart pulled completely over to the right. Sputum ++ 3 ozs.

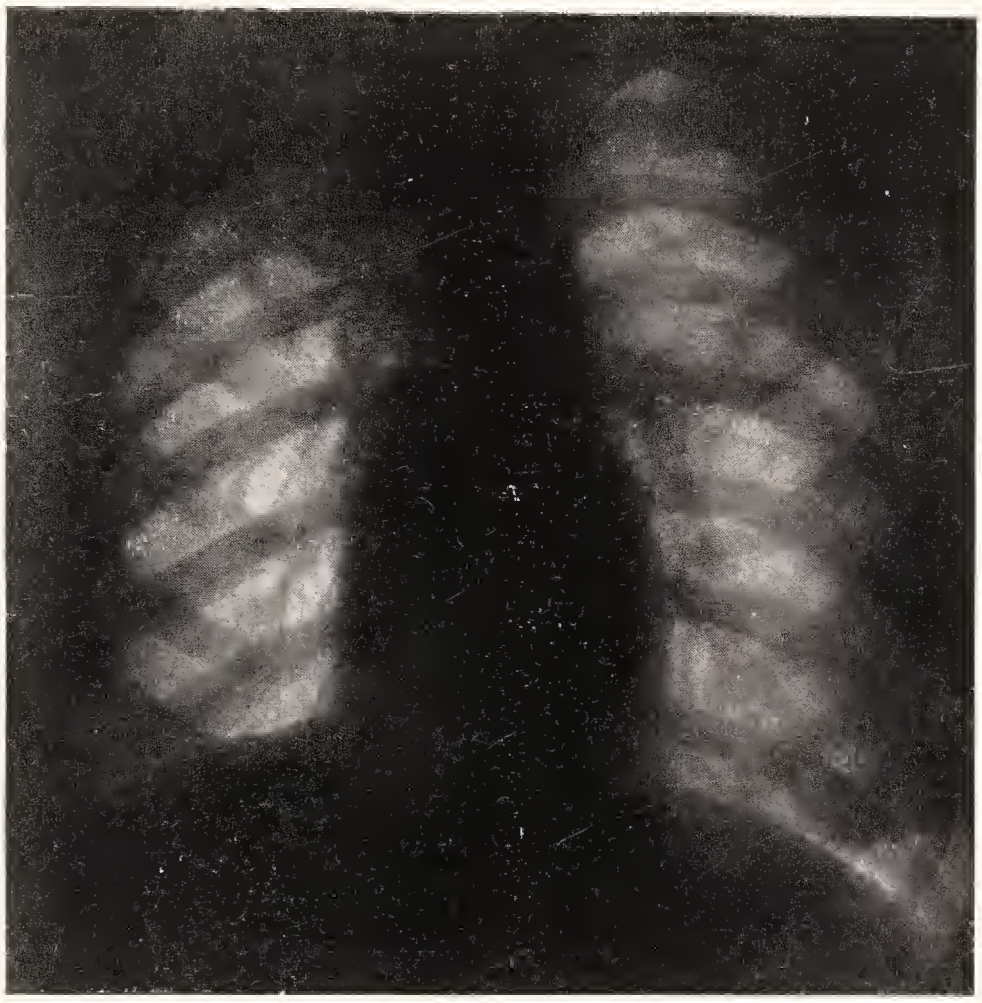


P.E.2(*b*).—Same patient. Skiagram taken 18/5/31 after induction of artificial pneumothorax. Heart back in normal position. Slight apical and dense basal adhesions preventing complete collapse of the lung. Sputum + 1 oz.

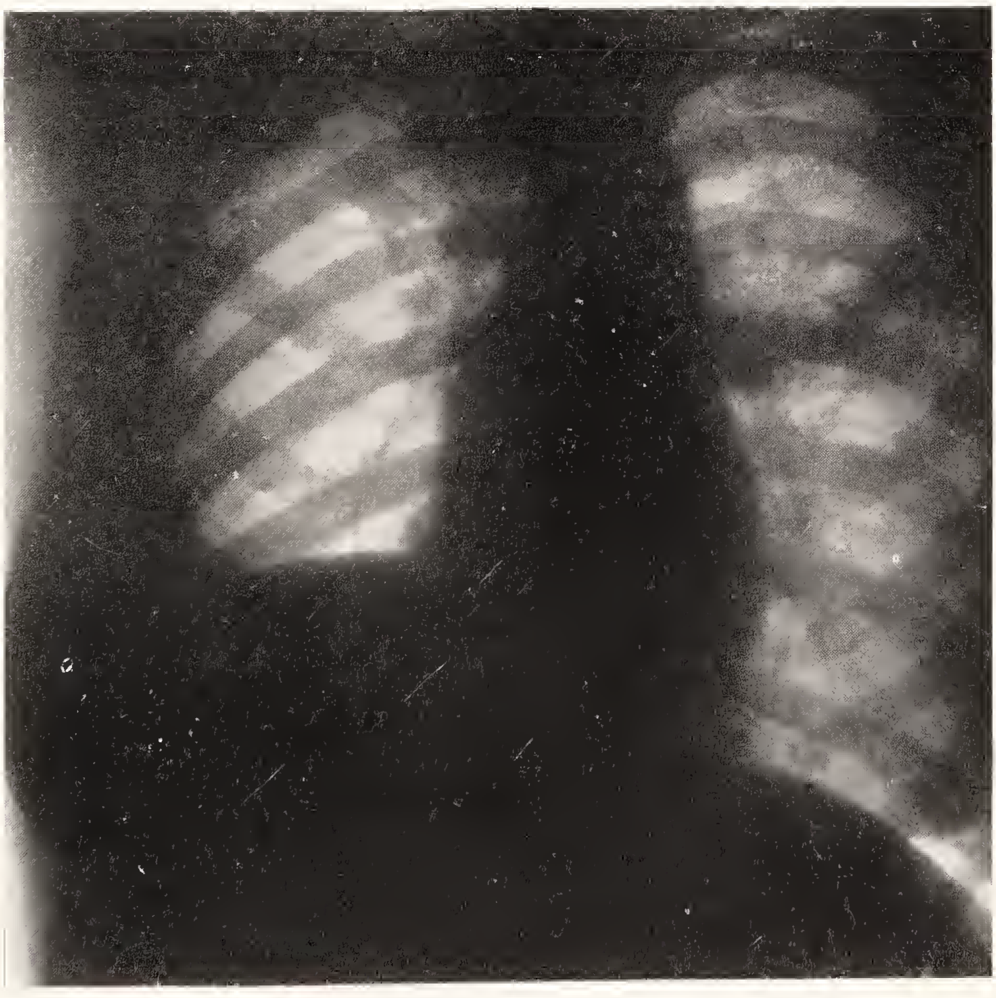


P.E.2(*c*).—Same patient. Skiagram taken 12/6/31 after right sided phrenic evulsion shows a rise of the right half of the diaphragm of two interspaces, with release of the basal and to a lesser extent of the apical adhesions and a more complete collapse of the lung. Marked improvement first from the pneumothorax and still further with phrenic evulsion. Sputum now 2 drachms, persistently negative.

[*Skiagrams taken by Dr. Leggat at Elswick Sanatorium.*]



P.E.3(*a*).—Patient T.S., aged 25, female, sputum persistently +. Skiagram taken 29/4/31, shows disease of the upper third of the right lung and a small area in the middle left. Artificial pneumothorax failed.



P.E.3(*b*).—Same patient. Skiagram taken 28/5/31, six days after phrenic evulsion, shows a rise of the right diaphragm of one space and one rib. The appearances at the apex suggest increased compression from below upwards together with a release in the downward pull. Since operation sputum has been persistently negative. Patient appears to be perfectly fit, and has now been discharged.

[*Skiagrams taken by Dr. Leggat at Elswick Sanatorium.*]

institutions, *viz.*, 3 from Withnell Pulmonary Hospital, 2 from Rufford Pulmonary Hospital, and 1 from High Carley Sanatorium. These latter patients were kept in Elswick for about a week, had the clips removed, and were then sent back to their respective institutions.

The operation itself has been carried out in all cases under local anæsthesia, and during the operation the patients had practically no pain and very little discomfort. The wound is closed with Michelin clips, and the resultant scars have been very small with almost no disfigurement.

Of the seven Elswick Sanatorium cases, the reasons which influenced me to advise phrenic evulsion were: (a) Two had had a partially successful artificial pneumothorax performed but the results were minimised by the presence of basal adhesions; and (b) artificial pneumothorax had failed in five cases. The following are brief notes on each of the seven:—

Case No. 1.—There was very definite improvement with the artificial pneumothorax (see skiagrams P.E. 2(a), 2(b) and 2(c)) but the improvement was still more marked after phrenic evulsion, the pull of the adhesions being released, thereby allowing better shrinkage of the cavities, with a still greater diminution in the amount of sputum, which has since been persistently negative.

Case No. 2.—Showed by X-ray release of the tension of the adhesions, but the general improvement has been less striking.

Case No. 3.—The improvement was marked, the apical cavity becoming much smaller, whilst there was a reduction of two-thirds in the amount of sputum with fewer bacilli per field. There was also very decided improvement in the cough.

Case No. 4.—Showed steady improvement for six weeks, with diminution in cough and sputum, the latter being less frequently positive, but a febrile relapse then ensued, probably due, I think, to the patient being allowed too much exercise. She is now improving with rest.

Case No. 5.—Improvement in cough and sputum is definite, though less marked than in the other cases.

Case No. 6.—Cough and dyspnœa improved, whilst the sputum previously always positive, has been negative on the last two occasions.

Case No. 7.—Cough improved. Reduction in the amount of sputum; previously persistently positive, now negative. (See skiagrams P.E. 3(a) and 3(b)).

With regard to the six cases brought in from High Carley, Rufford and Withnell, and sent back after operation, enquiries have been made (by Dr. Armour) from the medical superintendents concerned, and the following are brief notes on each case :—

Case No. 8.—Has now much less sputum, has lost his dragging sensations, and in general is improved.

Case No. 9.—Is stated to have definitely improved in general since the operation, though her sputum, etc., results are not very convincing.

Case No. 10.—Has had relief in coughing, and now at artificial pneumothorax can take about 600 cc. of air whereas formerly 200 cc. was her average.

Case No. 11.—The only case in the series which may be labelled " worse " after phrenic evulsion. With a right basal lesion and a small left-sided lesion he had had a positive sputum before admission to Withnell, then was negative for 5 months, up to operation. Since then five sputum examinations have yielded the following results :—Negative, positive, positive, negative, negative. A recent skiagram showed extension of the disease on the other side and he has slight œdema of the larynx.

Case No. 12.—Has improved in cough and amount of sputum but on the whole should be classified as " unchanged." The extent of the disease rendered any great gain from evulsion alone unlikely, and, apart from his age (47 years), the patient is a potential case for a later thoracoplasty.

Case No. 13.—A neurotic girl with unilateral disease and a persistent temperature of 99. Remains unchanged except for a temporary diminution in the amount of sputum—which has since increased again.

To sum up, while there has not been sufficient lapse of time to give end results, 5 patients have shown very definite improvement ; 5 slight improvement ; 2 are unchanged and 1 is worse.

At present, from the above it would appear that the best results from phrenic evulsion are to be obtained in the sanatorium type of case and it is possible that many of the pulmonary hospital type will require to have a thoracoplasty done at a later date.

I have to thank Drs. Laird, MacPhee and Pask for their courtesy in allowing Dr. Armour to report on the after-progress of their cases

VII.—NOTIFICATION OF TUBERCULOSIS CASES.

It is the statutory duty of every medical practitioner to notify within 48 hours to the local medical officer of health any case of tuberculosis occurring in his practice, and the medical officer of health is charged with the duty of keeping a register of such cases reported in his sanitary district.

The Ministry of Health have issued the Public Health (Tuberculosis) Regulations, 1930, which came into force on 1st January, 1931. These regulations consolidate the regulations issued in 1912, 1921 and 1924, and they also include several minor amendments of an administrative nature.

NON-NOTIFICATION.

I have continued to direct special attention to the notification of cases of tuberculosis, and have engaged in correspondence with medical practitioners, medical officers of health, and medical superintendents, over many individual cases.

The extent of non-notification of pulmonary cases in the Administrative County is shown in the following Table 6 :—

Year.	No. of deaths from pulmonary tuberculosis recorded.	Deaths not notified under Regulations during life.	
		No.	Percentage to pulmonary deaths.
1918	1652	303	18·3
1919	1339	221	16·5
1920	1323	177	13·3
1921	1301	135	10·3
1922	1362	105	7·7
1923	1250	85	6·8
1924	1215	64	5·2
1925	1205	67	5·5
1926	1158	58	5·0
1927	1105	54	4·8
1928	1066	56	5·2
1929	1102	62	5·6
1930	1046	46	4·3 *

* Of the 46 deaths which, in 1930, escaped statutory notification as tuberculous cases during life, it should be stated that 15 were known to the tuberculosis officer and 1 had been reported to the local medical officer of health as an admission to a public institution. If, therefore, these 16 deaths which were known otherwise than by the official primary notification under the Regulations be deducted, then the percentage of 4·3 *non-notified fatal cases would be reduced to* 2·8.

The substantial improvement which has been secured in the notification of cases of pulmonary tuberculosis before death would not have been practicable without the cordial co-operation of the local medical officers of health and, of course, the general practitioners who make the notifications.

There is no doubt that in this Administrative County a much smaller proportion of cases of tuberculosis escapes notification than is frequently the experience in other parts of the country. Thus, we have fewer unknown cases or unknown sources of infection remaining outside the measures for the control of tuberculosis.

For non-pulmonary tuberculosis, there were 61 non-notified fatal cases in 1930, which on the total deaths from this form of the disease equalled 24·1 per cent.

SPECIAL ENQUIRY INTO NON-NOTIFIED FATAL CASES.

Commencing in October 1920, special investigations have been carried out in regard to every individual death recorded which had not been previously notified. In 1930, there were 107 such deaths, and the enquiry for that year gave the following important results :

(1) That 34 (12 pulmonary, 22 non-pulmonary) of the 107 deaths in 1930 occurred in public institutions.

(2) That of the remaining 73 deaths, the circumstances of non-notification were as stated in the following table :—

TABLE 7. *Circumstances of non-notification of fatal cases.*

	Period 1st January to 31st December, 1930		
	Pulmonary	Non-Pulmonary	Total
Doctor in attendance shortly before death—			
1 week or less	3	7	13
1 to 2 weeks	2	—	
2 to 3 weeks	1	—	
Complicated cases, presenting difficulty in diagnosis (including 5 cases of meningitis). ..	2	9	11
Misinterpretation of Tuberculosis Regulations and notification believed to be unnecessary—			
Cases previously notified in another area ..	5	—	19
Disease of long duration, prior to compulsory notification	1	1	
Cases known to tuberculosis officers—considerable doubt as to diagnosis in some of these cases	9	3	
No doctor in attendance	—	2	2

[cont.

TABLE 7—*continued.*

	Period 1st January to 31st December, 1930		
	Pul-monary	Non-Pul-monary	Total
Attended by more than one doctor, and notification believed to have been made by first practitioner	3	6	9
Notified after death—in several instances after post-mortem examination	4	1	5
No apparent reason for non-notification	1	7	8
	31	36	67
Tuberculosis not primary cause of death	2	1	3
Information not ascertained	1	2	3
TOTAL	34	39	73

(3) *This table shows that there was no reasonable excuse for non-notification in only* 8 *of the* 73 *deaths.*

The efficiency of notification varies directly with the efficiency of the county council or county borough scheme dealing with tuberculosis. If there is no really comprehensive scheme, if there are poor and newly qualified, part-time, and badly paid tuberculosis officers, if there are insufficient means for expert diagnosis, and too few beds for treatment, then a high proportion of non-notified fatal cases will be the rule and not the exception.

TOTAL "KNOWN SOURCES OF POSSIBLE INFECTION."

One effect of the better notification of cases by practitioners has been to add to the number of new cases in recent years and statistically to make the figures disadvantageously comparable with the earlier years when a larger number of cases escaped notification.

It is, however, possible to obtain a truer record of the number of cases of pulmonary tuberculosis occurring year by year by adding together (*a*) the notifications and (*b*) the deaths which occurred without notification being made during life ; this total gives clearly the number of known sources of possible infection as the following table shows :—

TABLE 8.

YEAR	Pulmonary Tuberculosis.			
	Cases notified (*i.e.* during life)	Cases reported at time of death only.	Total known sources of possible infection.	Case-rate per 1,000 of pop'n. on col. (4).
(1)	(2)	(3)	(4)	(5)
1918	2,534	303	2,837	1·64
1919	2,105	221	2,326	1·34
1920	2,084	177	2,261	1·30
1921	2,044	135	2,179	1·23
1922	1,863	105	1,968	1·11
1923	1,937	85	2,022	1·13
1924	1,972	64	2,036	1·14
1925	1,846	67	1,913	1·07
1926	1,828	58	1,886	1·05
1927	1,794	54	1,848	1·02
1928	1,660	56	1,716	0·94
1929	1,517	62	1,579	0·87
1930	1,527	46	1,573	0·87

On this basis, the total "known sources of possible infection" of pulmonary tuberculosis during 1930 were, by a small margin, again the lowest on record.

VIII.—APPLICATIONS FOR TREATMENT.

Table 9 below shows the number of " new " patients (2,090) who applied for treatment under the County scheme during the year 1930 :—

	Number of Applications received during 1930.	Diagnosis of New Applicants for Treatment.			
		Pulmonary Cases.	Pulmonary and Non-Pulmonary.	Non-Pulmonary Cases.	Diagnosis not Confirmed (non-tuberculous).
Men	823	625	27	165	6
Women ...	765	509	12	233	11
Boys	252	34	4	209	5
Girls	250	34	3	202	11
TOTAL ...	2,090	1,202	46	809	33

Applications received in previous years were :—1918–21 average, 2,294 ; 1922–25 average, 2,183 ; 1926–28 average, 2,262 ; 1929, 1,923 ; compared with 1930, 2,090. Thus there were 167 more applications than in 1929.

During 1930, there were 2,509 cases notified under the Public Health (Tuberculosis) Regulations as suffering from tuberculosis (all forms), whereas the number of persons who applied for treatment to the County Council was 2,090, equal to 83 per cent. of the notifications.

With regard to the balance (namely 419, or 17 per cent.) of the notifications where the patients did not apply to the County Council for treatment, an investigation into the circumstances of each such case revealed the following reasons:—

In public institutions (*e.g.*, mental hospitals)	147
Removed from County area shortly after notification	33
Diagnosis of tuberculosis not established	19
Died soon after notification (including 38 cases of meningitis)	134
Treatment under County scheme not desired	67
No action taken for special reasons at request of medical attendant	19
	419

Thus, there were 67 patients (or 2·6 per cent.) of the total notified cases in 1930 who did not, for some reason or other, wish to avail themselves of the benefits under the County scheme.

Classification of New Patients.

(*a*) *Pulmonary Tuberculosis.*

During 1930, applications for treatment were received from 1,248 new patients, and these were reported by the tuberculosis officers to be in the undermentioned stages of the disease on the first examination :—

T.B. Minus (Sputum negative or absent)	457, or	36·6 per cent.
T.B. Plus 1 (Early cases, sputum positive) ...	89, or	7·1 ,, ,,
T.B. Plus 2 (Intermediate cases, sputum positive) ...	497, or	39·8 ,, ,,
T.B. Plus 3 (Advanced cases, sputum positive) ...	205, or	16·4 ,, ,,

It is well known that, throughout the country, tuberculosis officers do not see many of the new cases in the early stage of the disease. Some patients through ignorance, others on account of economic reasons, neglect to consult a doctor when in the early stage, and so lessen their chance of recovery. In the Administrative County we have for several years made special investigations into the reasons underlying such disastrous delay on the part of patients. These investigations have been continued in 1930, yielding the following conclusions which correspond very closely with those published in previous reports :—

1.—Altogether 72 per cent. of the 205 advanced cases either had no doctor or had only been attending their doctor for less than two months when first examined by the tuberculosis officer or notified. The corresponding percentage in 1929 was 69.

2.—After making allowance for a percentage of fulminating cases ("galloping consumption"), a large proportion—nearly three-fourths—of patients had felt ill for one or more months before consulting a doctor.

3.—The reason for late notification and patients delaying their application until in an advanced stage of the disease is chiefly the disinclination or unwillingness of the patients to report themselves to their doctor when feeling ill. This is due mainly to the insidious onset of the disease, the discomfort being only slight at first.

4.—There does not appear to be evidence in any large number of cases of unreasonable delay on the part of family doctors referring cases to the tuberculosis officer.

5.—The initiative to seek treatment when ill rests with the patient himself, and the only feasible remedy lies in the education of the public as to symptoms and common dangers of tuberculosis and the need for securing prompt treatment. This cannot be too strongly or too often emphasised.

With regard to the last conclusion 5, there are many difficulties in the way of reaching the people who most require such education. On the tuberculosis officer rests chiefly the duty of stimulating public interest, but an increasing number of sanitary authorities and voluntary care committees are assisting in propaganda work. It was hoped that more satisfactory results would accrue with the issue in January, 1928, by the Board of Education of a "Handbook of suggestions on Health Education for the consideration of teachers and others concerned in the work of public elementary schools."

In connection with the teaching of hygiene, the following extracts from Sir George Newman's annual report to the Board of Education for 1929 is of great interest :—

> " For many years I have endeavoured consistently to advocate in these Reports the teaching of Hygiene in all grades of schools. I have done this not only because Parliamentary Committees and Royal Commissions have urged its importance and paramount necessity and called upon the Board of Education to provide such instruction, but because I am profoundly convinced that such teaching is essential to the national health and well being. We cannot get, and we need not expect to get, a healthy people *unless our youth are trained in health.*"
>
> " . . . The Board may issue a Health Syllabus such as that of the *Hygiene of Food and Drink*, or the *Handbook of Suggestions on Health Education*, but the application of these documents is almost entirely a matter for each Local Education Authority, and mainly indeed for each School or Department and its Head Teacher."

The tuberculosis medical staff have to depend very largely on the general practitioners throughout the County for bringing forward tuberculous patients, and it is satisfactory to note that 87 per cent. of new cases are sent *before notification* to the tuberculosis officers for an opinion as to diagnosis. Too much importance is still laid by some doctors on sputum examinations alone, and often too long a time is allowed to elapse in order that the sputum may be tested; or steps are not taken to report the case until it is returned as " positive."

(*b*) *Non-Pulmonary Tuberculosis.*

There were 809 new cases diagnosed by the tuberculosis officers as suffering from non-pulmonary tuberculosis in the following forms :—

Bones, joints and spine	193	809
Abdomen	91	
Other organs	44	
Peripheral glands	413	
Skin	68	

In 1929 the number of applications from non-pulmonary cases was 712.

IX.—TREATMENT OF TUBERCULOSIS BY ARTIFICIAL LIGHT.

Result of an Experiment on the Treatment of Pulmonary Tuberculosis by Dr. E. H. Allon Pask.

Many Continental observers have written as to the value of light, both natural and artificial, in the treatment of pulmonary tuberculosis. In this country the general concensus of opinion appears to be that this form of treatment, far from being helpful, is definitely injurious ; on the other hand, Wood and Wienbren consider that it is a useful adjunct to treatment. During a tour of Canada in 1930 I observed that light treatment, both natural and artificial, was employed at a considerable number of sanatoria in cases of pulmonary tuberculosis, and the results were said to be satisfactory.

At Oubas House Children's Sanatorium, which is an institution for tuberculous girls, natural sunlight treatment is employed with benefit in selected cases during the summer months. During this time the well-being of the patients is much improved, and the teacher has observed they are much more alert at their school work.

With a view to testing the value of artificial light treatment in cases of chronic pulmonary tuberculosis, six male dispensary cases were selected who were afebrile and had positive sputum.

The maximum exposure was 30 minutes with " Sunrae " long-flame carbon arc lamp at three feet distance. Temperatures were taken before and after exposure, and there was never a rise of temperature beyond 0·8 of a degree after exposure.

In two of the six cases the treatment was discontinued. One patient did not appear to be improving and treatment was stopped after six weeks, during which time he had lost 2 lbs. in weight and complained that his cough was worse and expectoration more difficult. Before the light treatment he had extensive bilateral disease and was going slowly downhill. In the other case the weight remained stationary, and treatment was stopped after 14 weeks on account of a hæmorrhage. I do not think there was any connection between the hæmorrhage and the light treatment. Just before the hæmorrhage his condition was the same as before light treatment.

The following is a résumé of the four cases who had eleven months months' artificial light treatment at the Ulverston dispensary light centre :—

TABLE 10.

Patient, diagnosis, and duration of disease.	Condition before light treatment.	Condition after eleven months' light treatment.
G. N. J., aged 31. Carter. T.B. plus 2. Duration of disease 3 years.	Weight 10 st. 7 lbs. Sputum positive. Unfit for work.	Weight 10 st. 12 lbs. Sputum still positive—less in amount. General condition improved—not so short of breath. Cough about the same. Fit for work.
R.H., aged 49. South African gold miner. T.B. plus 2 and silicosis. Duration of disease 4½ years.	Weight 10 st. 13 lbs. Sputum positive—a little every morning. Cough troublesome. Unfit for work.	Weight 11 st. Sputum positive—almost disappeared, a little occasionally. Cough considerably improved. Dyspnœa improved. General condition fair. Working—has a small-holding.
W. J. M., aged 33. Electrician. T.B. plus 3. Duration of disease 10 years.	Weight 9 st. Sputum positive and considerable in amount. Cough troublesome. Very short of breath; night sweats. Fistula in ano—slight discharge. Unfit for work.	Weight 9 st. 2 lbs. Sputum and cough as before. General condition the same. Fistula healed. Unfit for work.
G.N.S., aged 39. Manganese miner, West Africa. T.B. plus 1 and silicosis. Duration of disease 1½ years.	Weight 8 st. 9 lbs. Sputum positive—a little every day. Cough rather troublesome. Considerable dyspnœa. Unfit for work.	Weight 8 st. 5½ lbs. Sputum positive but less; some days no sputum. Cough somewhat better. Dyspnœa much improved. General condition much better. Fit for work.

Allowing for the ups and downs in the course of chronic pulmonary tuberculosis, I consider that three of the four cases derived definite benefit from light treatment, probably due to the general tonic effect of light baths. These patients have continued to attend twice a week regularly for eleven months and are still attending, although they have to travel a distance of six miles to the dispensary.

There was little or no improvement in the X-ray appearances of the lesions in the lungs, and the physical signs remained much the same. The most marked improvement occurred in the symptoms. Sputum, cough, and dyspnœa were lessened in three cases, which had become fit for light work. There was a slight gain in weight in three of the four cases.

To sum up, in view of the results obtained, I think artificial light treatment is worth serious consideration in the treatment of chronic cases of pulmonary tuberculosis, provided due care is taken in the selection of cases. (*Signed*) E. H. ALLON PASK.

PRESENT POSITION OF THE COUNTY SCHEME.

Commencing with two experimental light centres in 1925, the County scheme has been extended, and now twelve centres have been opened at County tuberculosis dispensaries. The names of the light centres and the description of the equipment were given in last year's report.

The treatment of the patients has been carried out under the direct supervision of the consultant tuberculosis officer of each dispensary area and by the medical and nursing staff under him.

RESULTS OF TREATMENT.

Tables showing the results of treatment at each light centre have been received from the consultant tuberculosis officers of the dispensary areas, and are included in Chapters XII. to XVIII. The tables in question have been summarised in the following form which represents the work done at the twelve centres in the County during the year 1930 :—

TABLE 11.

Form of tuberculosis or part of body affected.	Number of cases on treatment on 1–1–30.	Number of cases commencing treatment in 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
			Quiescent and apparently well.§	Improved.	Stationary.	Worse.		
Skin	167	87	40	11	2	1	26	174
Adenitis with abscess formation and skin involvement ...	105	173	135	8	3	—	26	106
Adenitis without softening ...	58	117	61	7	7	—	26	74
Bones, joints, and spine ...	37	46	20	5	4	—	22	32
Abdomen	19	27	20	—	—	—	11	15
Other non-pulmonary conditions	13	12	7	1	1	—	3	13
Pulmonary tuberculosis :—								
Lungs—sputum positive ...	3	6	—	—	1	3	1	4
sputum negative ...	2	1	1	—	—	—	1	1
Bronchial glands	2	—	1	1	—	—	—	—
Pleura	2	—	2	—	—	—	—	—
Pulmonary and non-pulmonary combined	2	3	1	—	—	—	—	4
	410	472						
Total for 1930	882 †		288	33	18	4	116	423
	403	439						
For comparison, the total in 1929 was	842 ‡		252	34	14	3	129	410

* Includes : (1) any patient who did not receive two months' treatment ; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue) ; and (3) patients transferred to sanatoria or hospitals.

† Adults, 473 ; children, 409. ‡ Adults 466 ; children, 376.

§ The term "quiescent and apparently well" has been chosen to express the condition of a lesion which has been healed by artificial light treatment. By direction of the Ministry of Health no case of non-pulmonary tuberculosis is written off the tuberculosis register as "recovered" until three years have elapsed without any signs or symptoms of active disease.

In addition to the 882 active cases dealt with in the foregoing table, there were 46 cases—41 non-pulmonary and 5 pulmonary—whose condition was quiescent on commencing light treatment. The object of treatment was to prevent a possible recurrence of active disease.

The results of treatment of cases of non-pulmonary tuberculosis in 1930 may be considered satisfactory, particularly for two groups of cases, namely: (i) skin and (ii) adenitis with abscess formation and skin involvement. These two conditions are usually refractory to other forms of treatment.

Of the total patients attending the light centres, 79 per cent. were able to continue their normal occupation during the course of treatment.

The average gain in weight of the 288 patients who became "quiescent and apparently well" was as follows:—adults 4·35 lbs.; children 5·93 lbs.

The degree of pigmentation attained in these 288 patients was: deep 62, medium 76, light 72, none 78.

In the report on the Wigan dispensary centre Dr. G. B. Charnock has drawn attention to the different results obtaining, according to whether the patient has an acid or alkali diathesis (see page 80).

AVERAGE DURATION OF TREATMENT.

The duration of treatment has varied widely according to the type of non-pulmonary disease. Taking several groups of cases in which the disease has become "quiescent and apparently well" the average duration is as given in the following Table 12:—

Form of tuberculosis or part of body affected.	Number of cases (active on commencing light treatment) who became "quiescent and apparently well."	Average duration of light treatment.	*For comparison*: Average duration of disease *before* commencing light treatment.
		Months.	Months.
Skin	40	13·60	135·70
Adenitis with abscess formation and skin involvement ...	135	8·96	24·01
Adenitis without softening ...	61	8·31	20·39
Bones, joints, and spine ...	20	11·90	38·35
Abdomen...	20	9·65	14·43

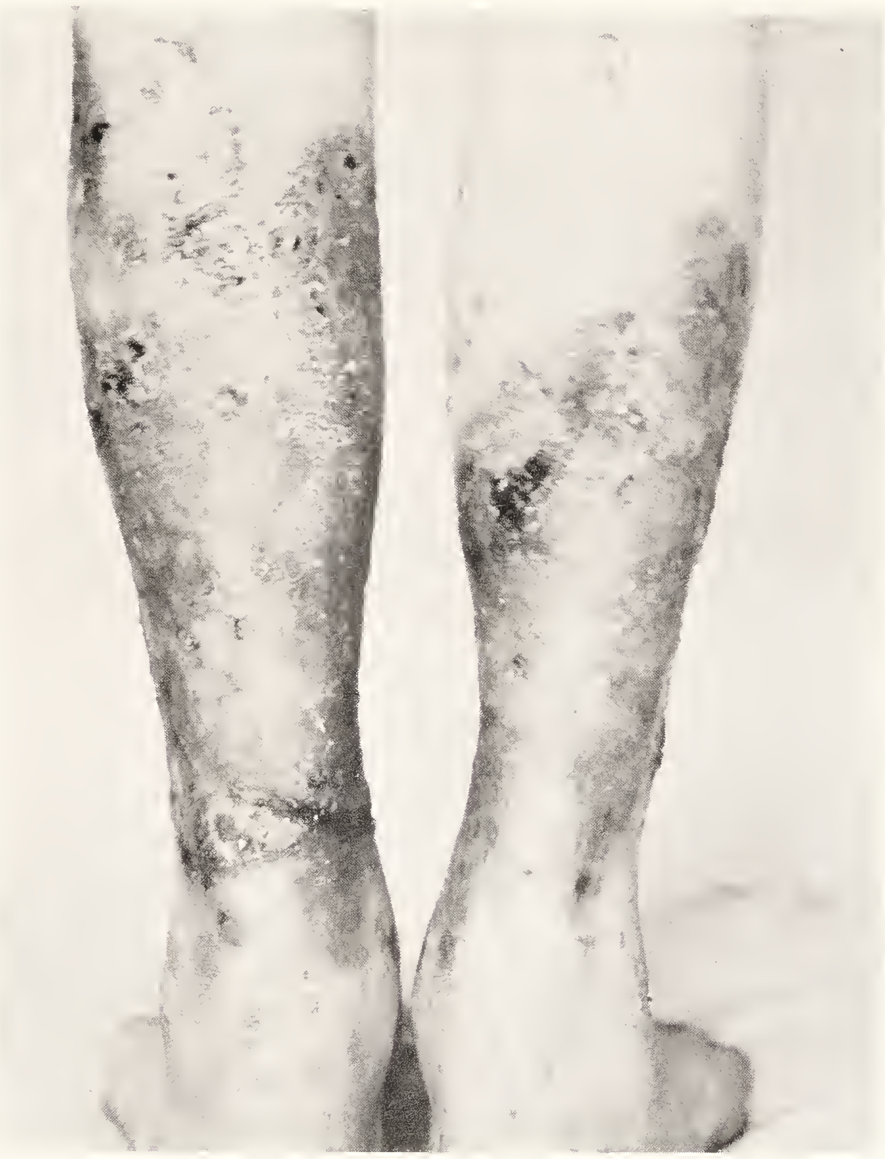
The frequency of attendance of patients depends on several factors, but at ten of the centres the great majority of patients attend twice per week, and at the other centres thrice per week. Thirty-three per cent. of the patients were assisted by the payment of railway, bus or tram fares to the light centre.

PHOTOGRAPHIC RECORDS.

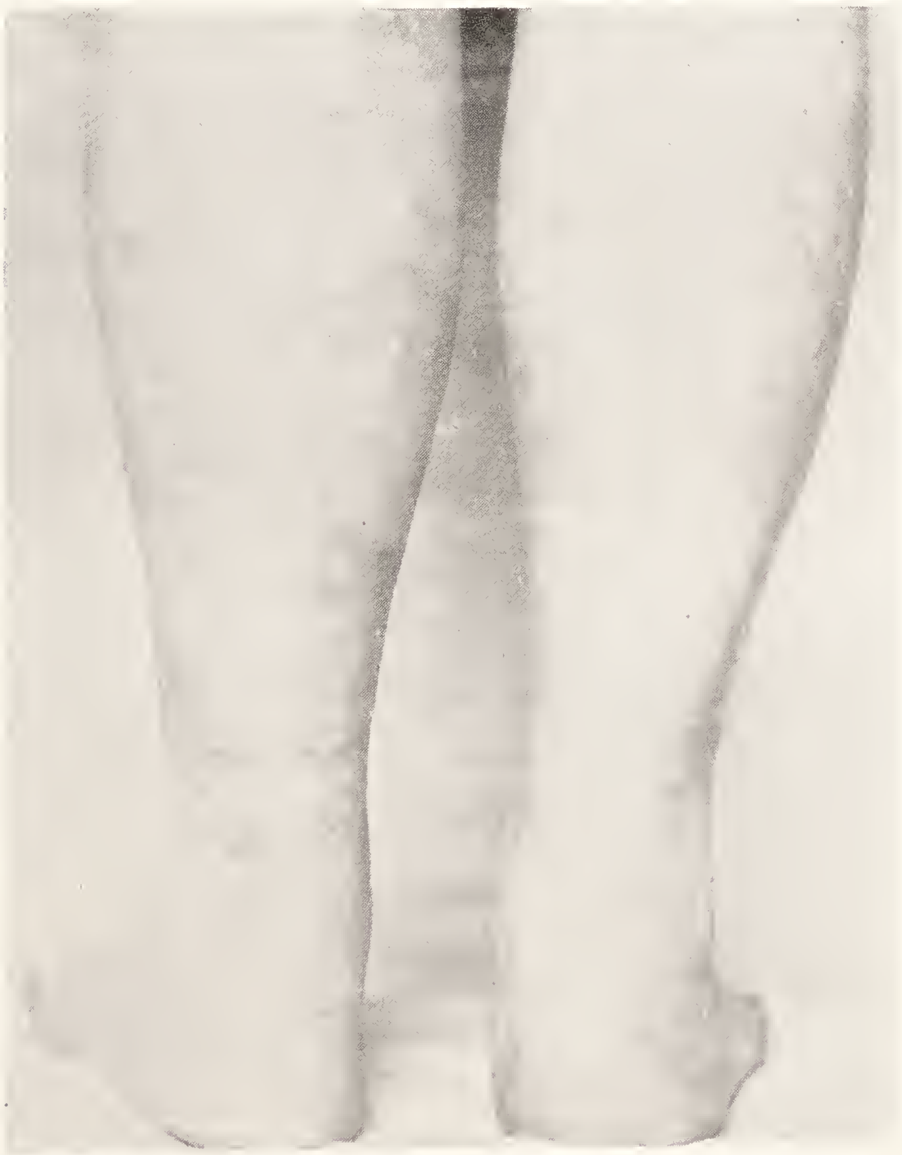
In order to record the progress made by patients, photographs have been taken of a number of cases treated by light—at commencement, during the course of treatment, and on termination.

COST OF LIGHT TREATMENT.

The cost of artificial light treatment at the centres averaged 4s. 6¾d. per patient per week (inclusive of standing charges and a proportion of staff salaries, etc.).

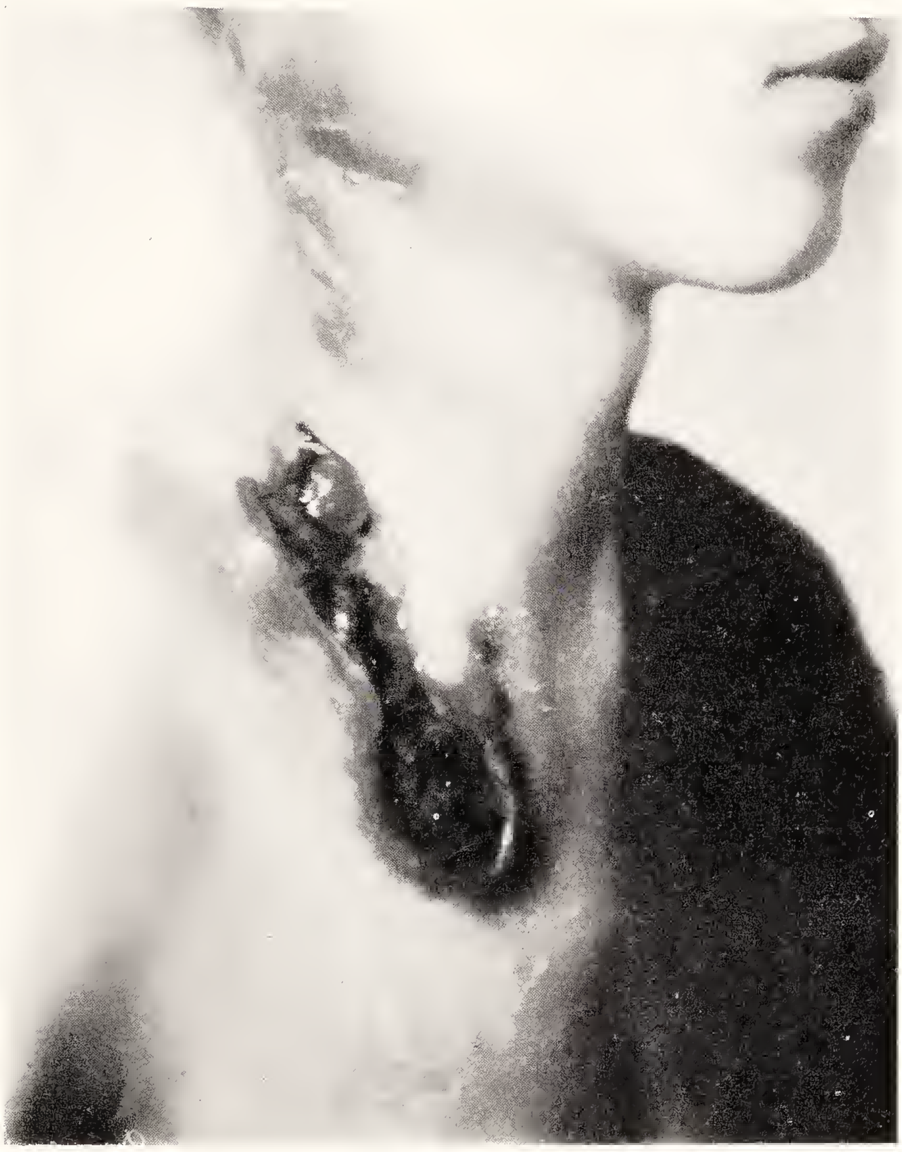


A.L.1(*a*).—Patient M.W., aged 17. Photograph taken on 16th July, 1930, shows severe tuberculous ulceration of legs. Duration of disease 9 months. Previous treatment, lotions, dressings, and rest in bed, but no improvement.

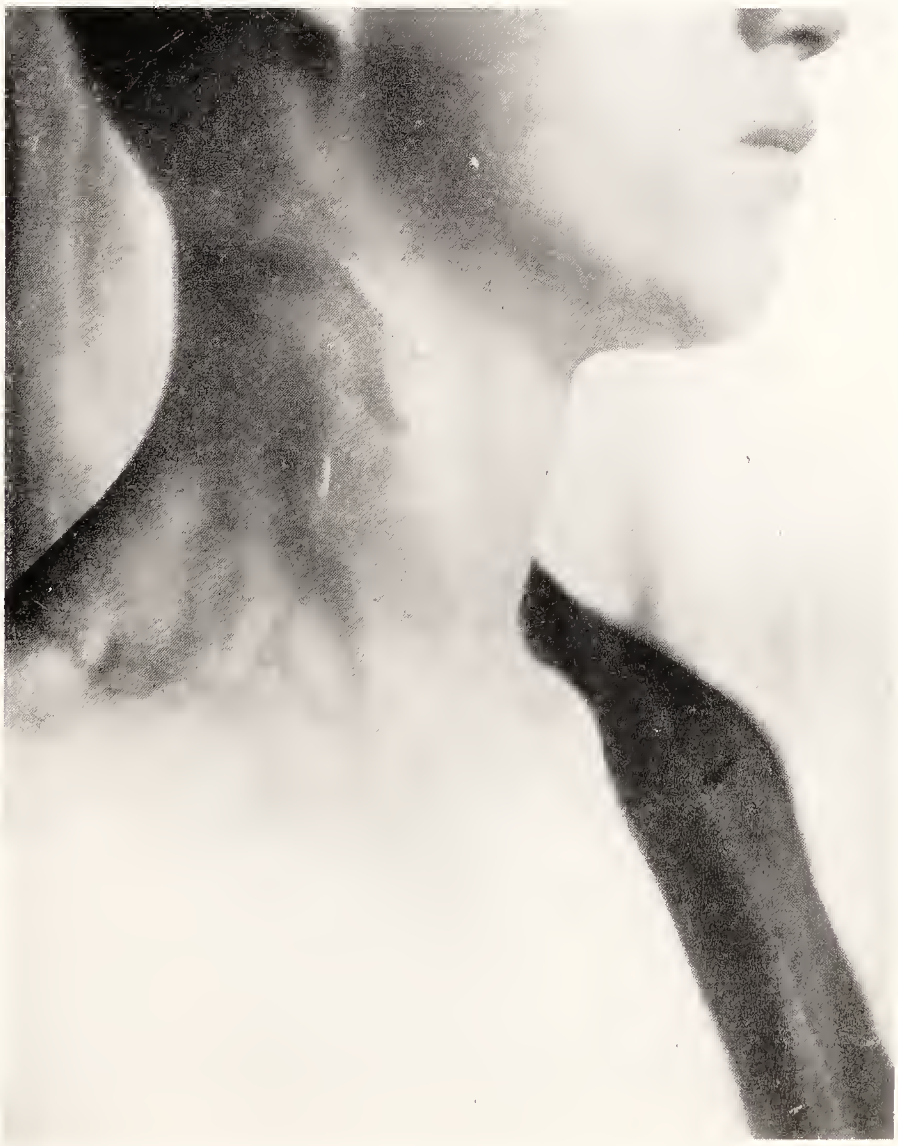


A.L.1(*b*).—Same patient. Photograph taken on 22nd July, 1931, shows lesions soundly healed. Limbs have fattened and scars are supple. Treated by 40 applications of ~~live~~ [illegible] gelatine and carbon arc (grade C) radiations.

[*Photographs taken at Wigan County Dispensary.*]

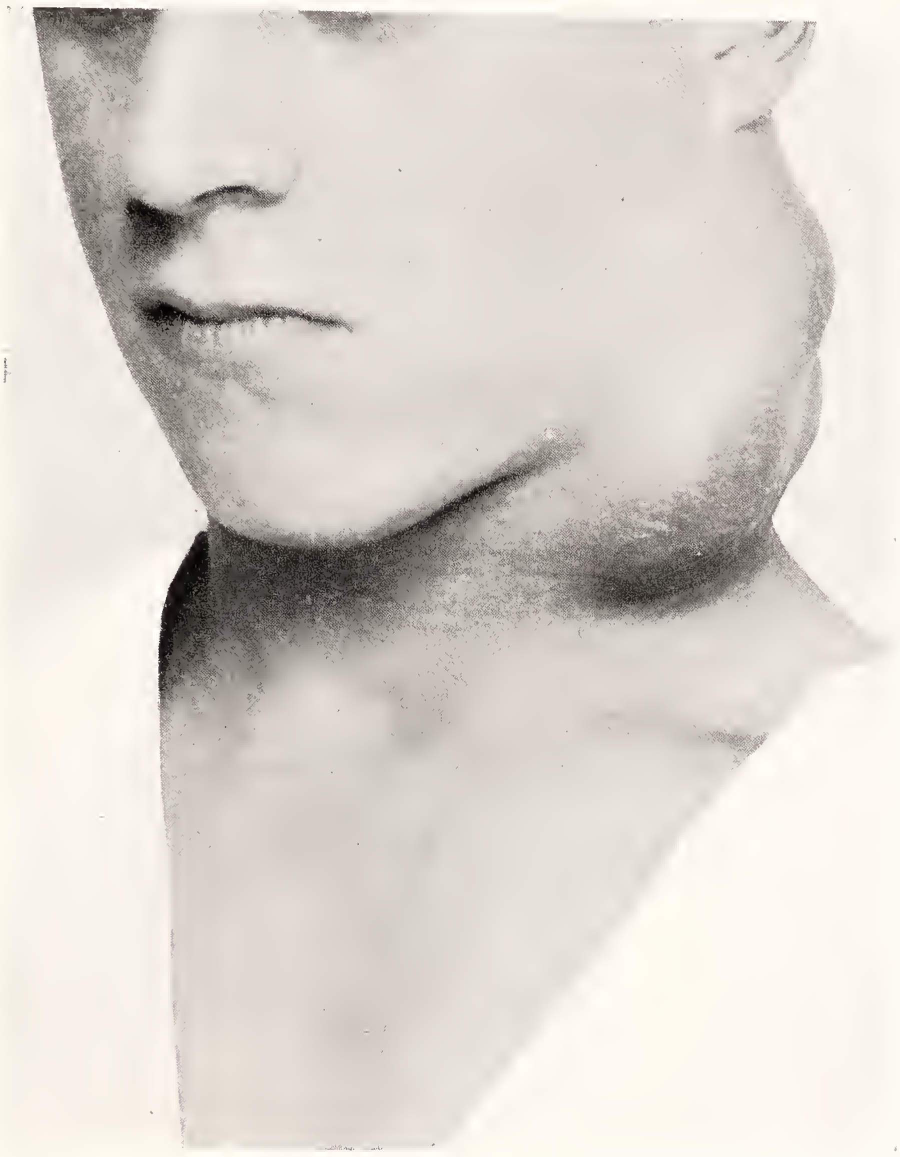


A.L.2(*a*).—Patient H.W., aged 15, male. Adenitis with abscess and extensive skin involvement. Duration of disease prior to light treatment three months. Photograph shows condition in June, 1930, before light treatment commenced.

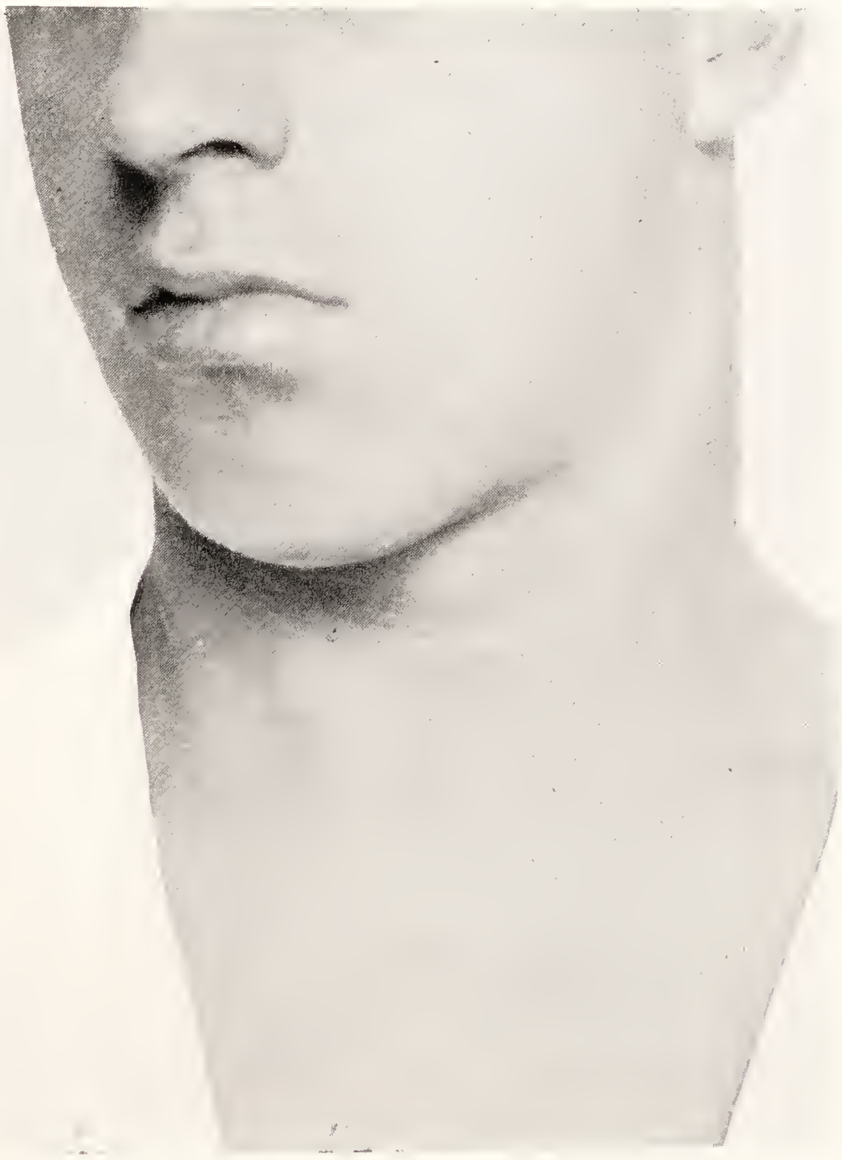


A.L.2(*b*).—Same patient. Condition in March, 1931, after nine months' treatment by general carbon arc baths twice weekly. Photograph shows disease quiescent. Patient now at work.

[*Photographs taken at Ashton-under-Lyne Dispensary.*]



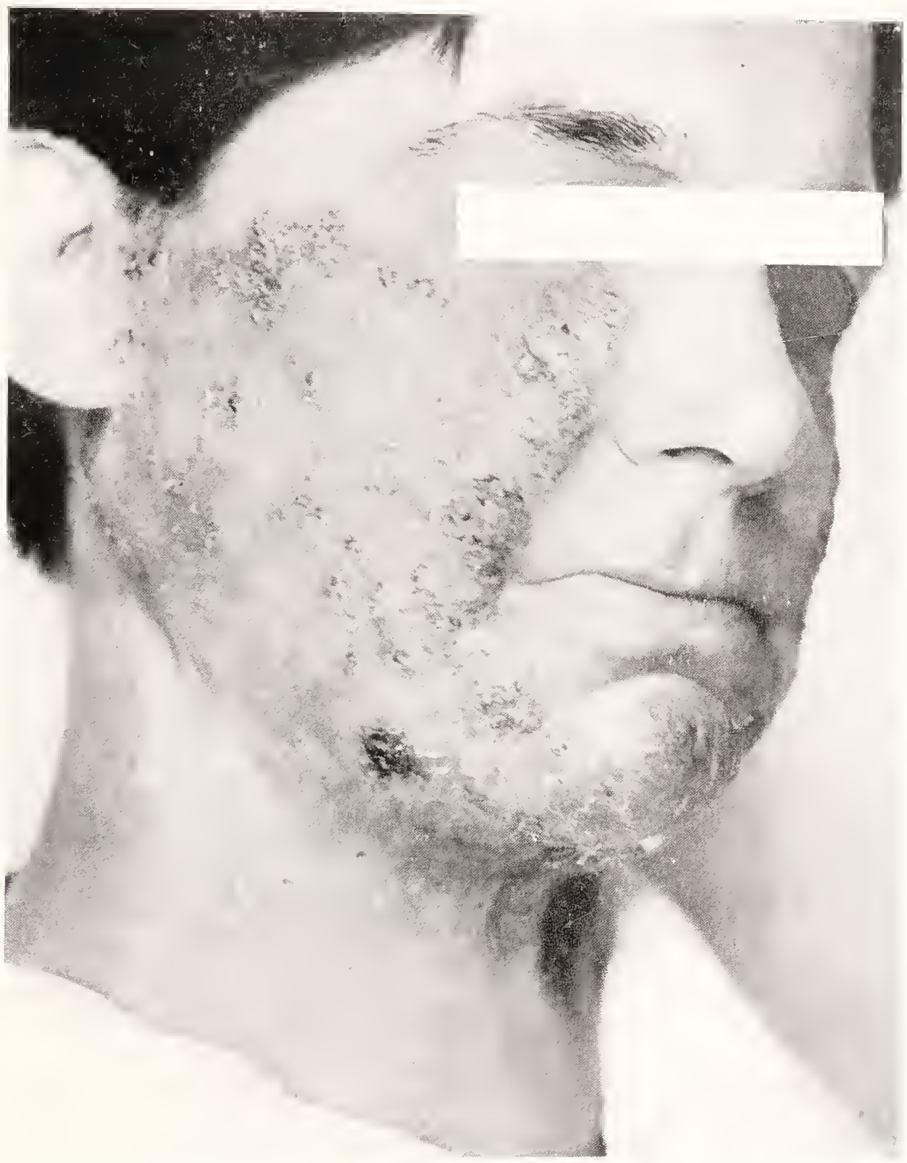
A.L.3(*a*).—Patient K.H., aged 16, male, with adenitis. Duration of disease prior to light treatment ten years. Previous treatment two operations at a general hospital eight years ago.



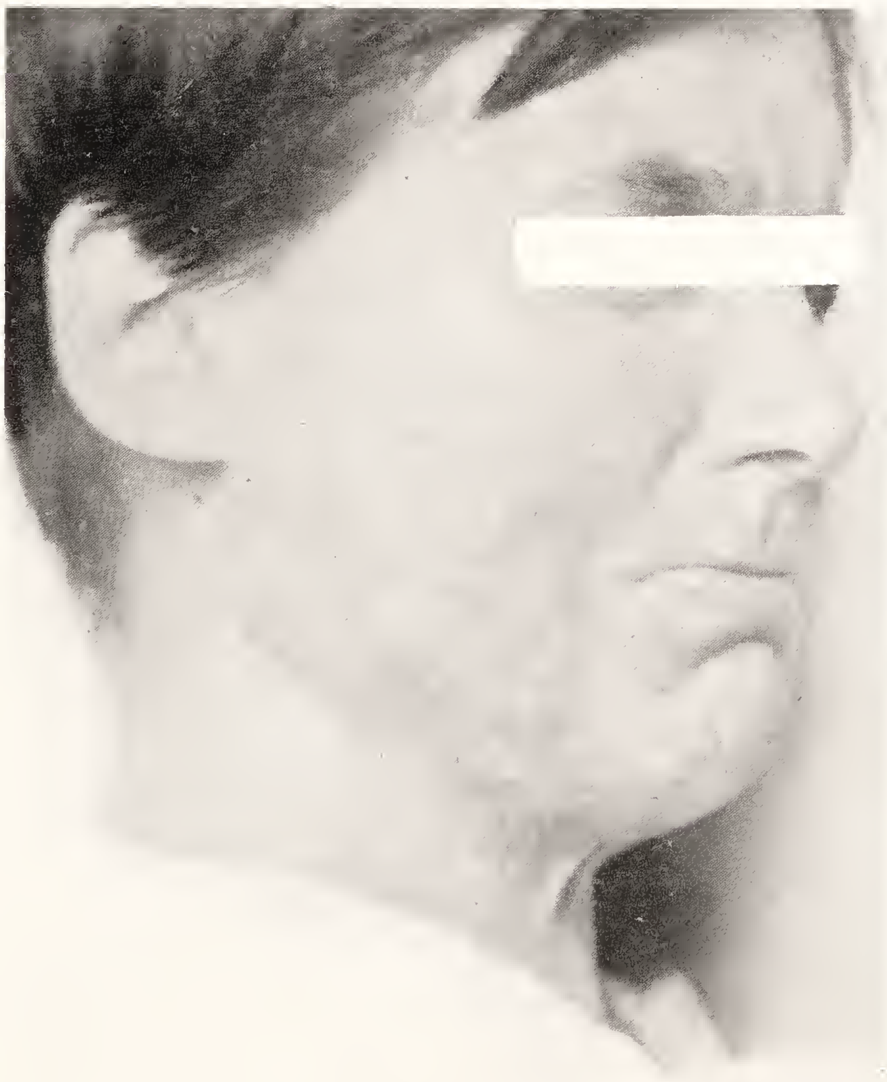
A.L.3(*b*).—Same patient. Photograph taken 18/8/30 shows condition after four months' treatment with general carbon arc and local mercury vapour Jesionek lamps. Also aspiration. Pigmentation deep. Weight gained 14½ lbs.

[*Photographs taken at Eccles Dispensary.*]

ARTIFICIAL LIGHT TREATMENT AT DISPENSARIES.

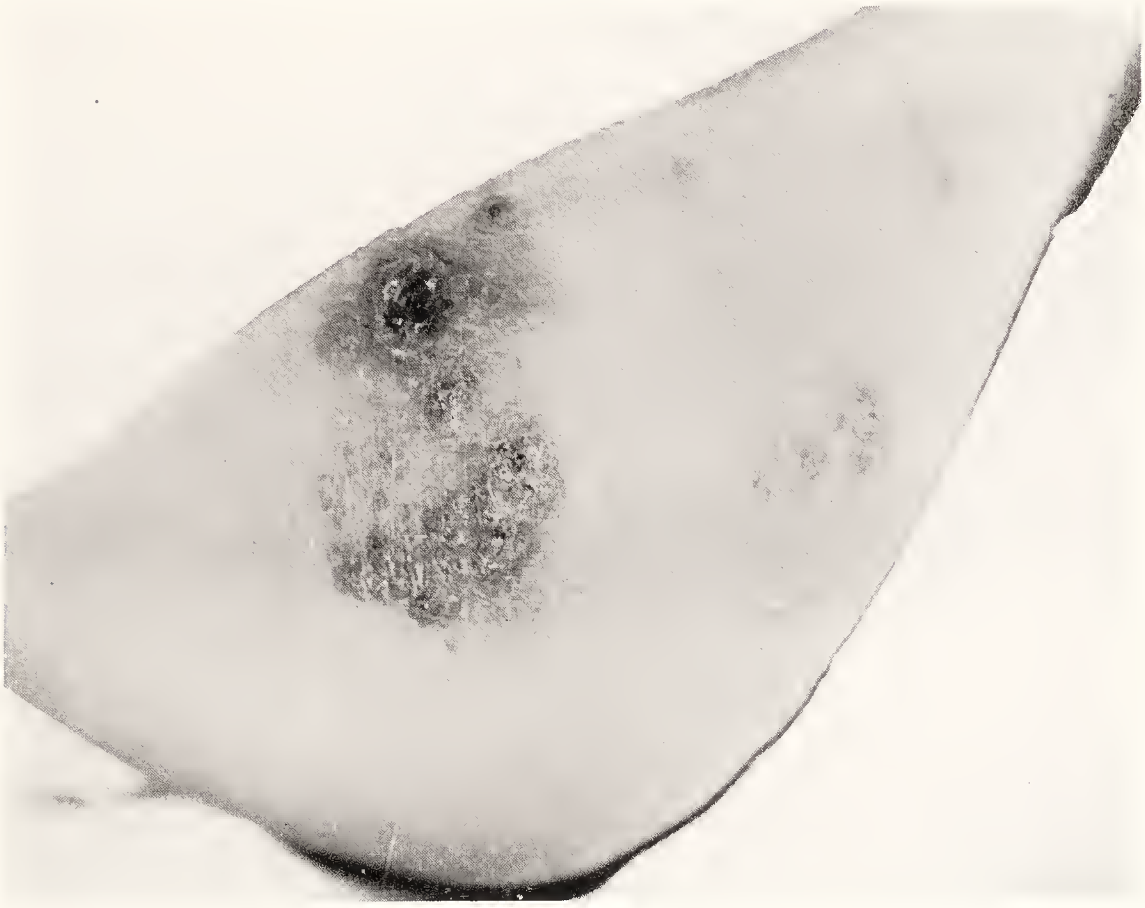


A.L.4(*a*).—Patient E.K., aged 39. Extensive lupus face. Duration 38 years. Previous treatment, skin dept., general hospital, and herbalist. Photograph shows condition on 16th July, 1930. Ectropion and lachrymation.

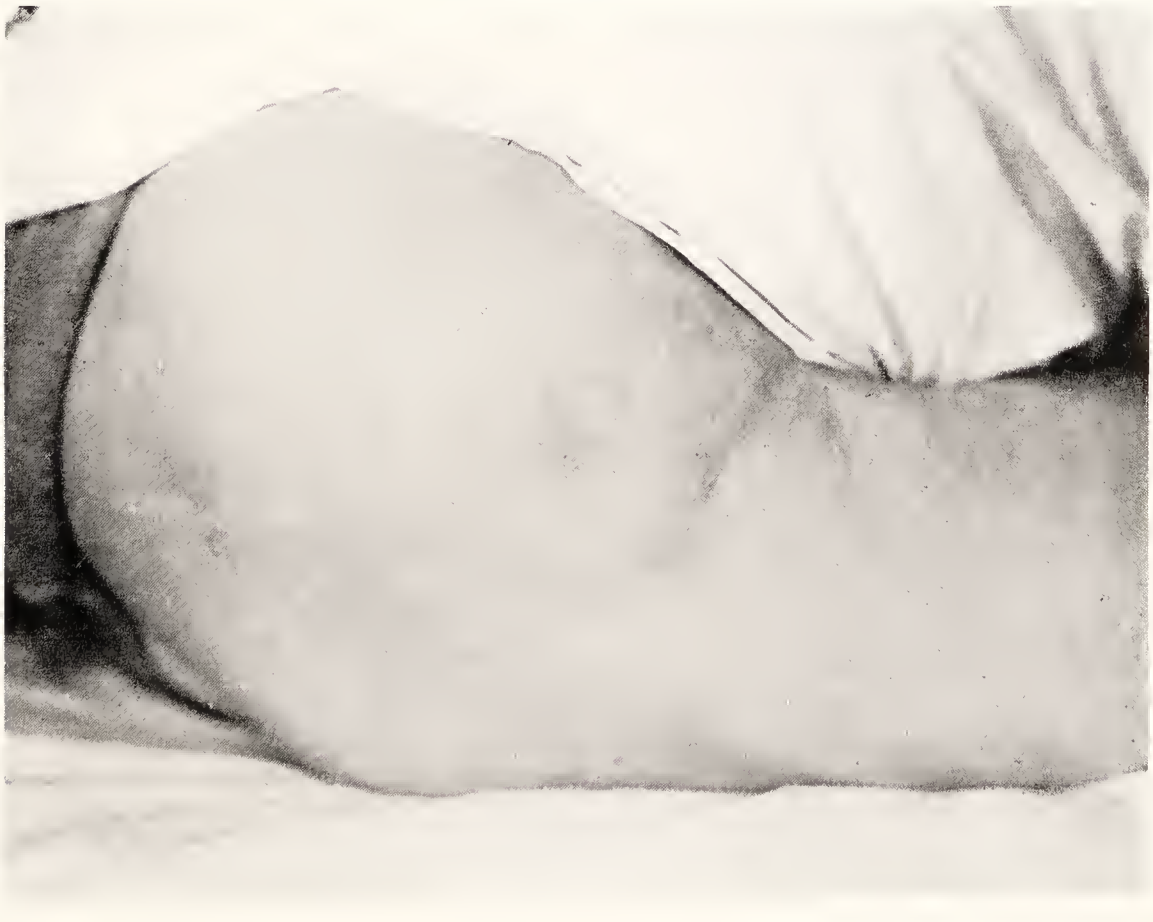


A.L.4(*b*).—Same patient. Condition on 22nd July, 1931, after exposures to carbon arc (grade C). Ectropion and lachrymation have disappeared.

[*Photographs taken at Wigan County Dispensary.*]



A.L.5(*a*).—Patient A.R., aged 14. Deep warty lupus buttock. Duration of disease 4–5 years. Photograph shows condition on 20th August, 1929.



A.L.5(*b*).—Same patient. Photograph shows condition on 4th February, 1931. Lesions disappeared. Curettings under borocaine on 9th July, 1930, and 12th November, 1930, to remove warts. Treated with mercury vapour radiation (Jesionek lamp).

[*Photographs taken at Wigan County Dispensary.*]

X.—TREATMENT OF NON-PULMONARY TUBERCULOSIS.

Immediate Results of Institutional Treatment at General and Special Hospitals.

A summary of the condition on discharge of patients treated during 1930 in approved general and special hospitals and in the Manchester and Salford Skin Hospital is given below :—

Table 13.

Classification on admission to the institution.	Condition at time of discharge.	Duration of residential treatment in the institution.												Total	
		Under 3 months.			3—6 months			6—12 months			More than 12 months				
		M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	No.	%
Bones and Joints.	Quiescent	2	2	7	1	2	12	4	2	6	5	3	18	64	25·8
	Improved	40	34	15	4	4	6	6	4	8	9	8	12	150	60·5
	No material improvement ...	4	3	4	2	—	1	1	1	1	—	1	—	18	7·2
	Died in institution	3	1	3	—	2	1	1	1	1	—	—	3	16	6·4
Abdominal.	Quiescent	—	1	—	—	—	2	—	—	1	—	—	4	8	21·0
	Improved	1	5	7	—	—	2	1	—	3	—	1	2	22	57·9
	No material improvement ...	1	—	2	—	—	—	—	—	3	—	—	—	6	15·8
	Died in institution	—	—	2	—	—	—	—	—	—	—	—	—	2	5·3
Other Organs.	Quiescent	1	2	—	—	—	—	—	—	1	—	1	—	5	8·2
	Improved	19	17	1	2	—	1	1	—	1	—	—	1	43	70·5
	No material improvement ...	5	1	1	—	—	—	—	—	—	—	—	—	7	11·5
	Died in institution	2	3	1	—	—	—	—	—	—	—	—	—	6	9·8
Peripheral Glands.	Quiescent	8	7	9	—	—	1	—	—	5	—	—	—	30	20·3
	Improved	21	34	46	1	1	5	1	1	1	—	—	1	112	75·7
	No material improvement ...	1	—	4	—	—	—	—	—	—	—	—	—	5	3·4
	Died in institution	—	—	1	—	—	—	—	—	—	—	—	—	1	0·6
	Total	108	110	103	10	9	31	15	9	31	14	14	41	495	—
		Under 1 week.			1—2 weeks.			2—4 weeks.			More than 4 weeks.				
Observation for purpose of diagnosis.	Tuberculous	—	—	—	—	—	—	—	1	—	2	—	8	11	64·7
	Non-tuberculous	—	—	—	—	—	—	1	1	—	2	—	1	5	29·4
	Doubtful	—	—	—	—	—	—	—	—	—	—	1	—	1	5·9

AFTER-HISTORIES OF PATIENTS SUFFERING FROM NON-PULMONARY TUBERCULOSIS.

Last year the after-results of 1,159 adults and 1,455 children first treated during the five years 1920 to 1924 were recorded: 75 per cent. of the cases had recovered or had the disease quiescent. Although this year the after-histories have not been worked out again, the excellent results have continued.

XI.—THE DISPENSARY ORGANISATION.

The efficiency of a tuberculosis scheme depends directly on the kind of dispensary organisation set up, and while much prominence is given to work done at hospitals and sanatoria, the dispensary organisation is undoubtedly of primary importance because the whole basis of the work here is towards early diagnosis and prevention rather than cure. The tuberculosis officer and staff have to carry out the most delicate duties, working in the closest co-operation with practitioners and health officials, diagnosing with due sense of responsibility cases referred to them, advising appropriate form of treatment, investigating tactfully the home conditions, and supervising home treatment.

A tuberculosis dispensary should be the centre of activity, for a town or district, in regard to measures for the prevention of the disease, the expert examination and diagnosis of cases, together with the supervision, special treatment, and care of all known tuberculous persons. The tuberculosis officer himself should be a first-rate clinician, of mature judgment and experience, of high professional standing, possessing expert and up-to-date knowledge of tuberculosis in its varied phases, and looked upon as a consultant by the general practitioners ; he must have tact, discrimination, and administrative ability.

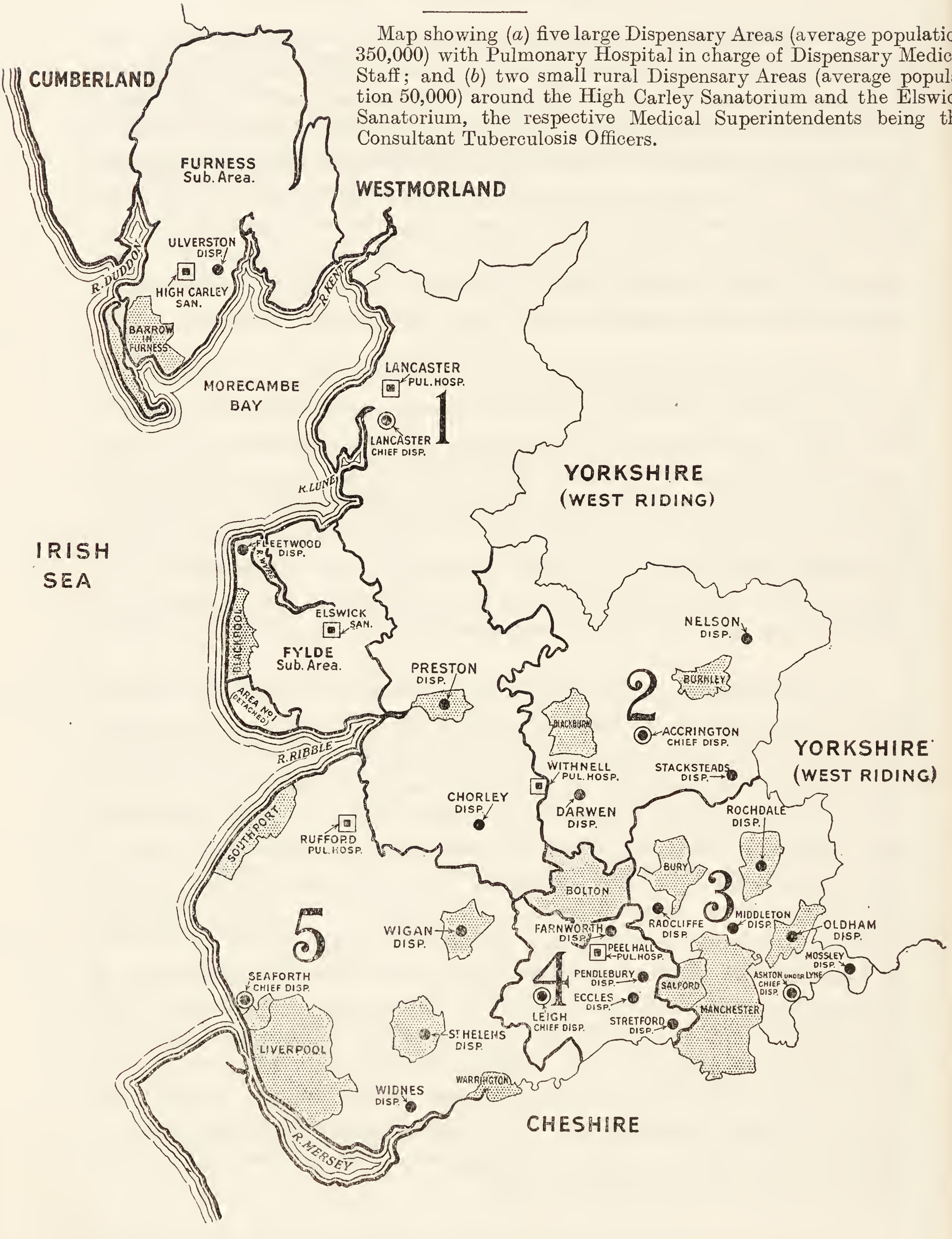
For dispensary purposes, the Administrative County is divided into five large areas, average population 350,000, and two sub-areas. Each large area is under the charge of a consultant tuberculosis officer, and to help the consultants there are nine assistant tuberculosis officers, 33 tuberculosis health visitors, and clerical staff. In each dispensary area there is a chief dispensary at which is co-ordinated the whole of the work required in that particular area, and, in addition, branch dispensaries have been provided. The aim of the County Council has been to provide in each area a pulmonary hospital containing about 50 beds for the diagnosis of observation cases and the treatment of intermediate and advanced cases of pulmonary tuberculosis near their homes, the consultant tuberculosis officer of the particular dispensary area acting as the visiting medical superintendent. The two sub-areas—Furness and Fylde—are in the charge respectively of the medical superintendent of the High Carley Sanatorium and the Elswick Sanatorium. Thus, the dispensary side of the work is not divorced from the institutional side.

The dispensary organisation is better illustrated by the map and chart overleaf.

ADMINISTRATIVE COUNTY OF LANCASTER.

DISPENSARY ORGANISATION.

Map showing (*a*) five large Dispensary Areas (average population 350,000) with Pulmonary Hospital in charge of Dispensary Medical Staff; and (*b*) two small rural Dispensary Areas (average population 50,000) around the High Carley Sanatorium and the Elswick Sanatorium, the respective Medical Superintendents being the Consultant Tuberculosis Officers.

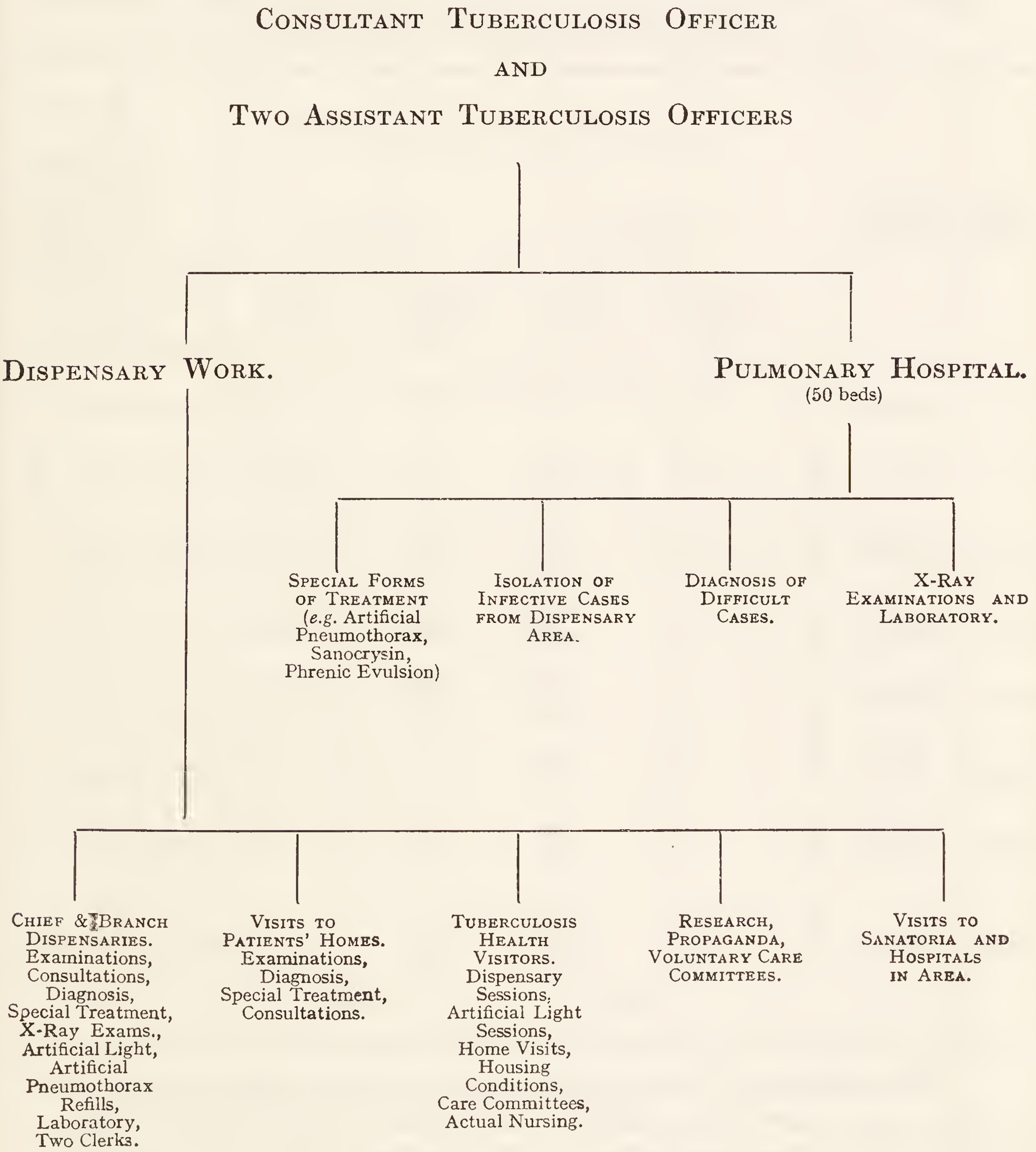


Administrative County: Population (estimated 1930) 1,806,960.
Area 1,050,889 acres.

County Boroughs, shaded, do not form part of the Administrative County.

THE DISPENSARY ORGANISATION.

As shown on the map opposite, the Administrative County is divided into five large dispensary areas (average population 350,000). The chart below illustrates the organisation and work of one of these dispensary areas :—


CONSULTANT TUBERCULOSIS OFFICER
AND
TWO ASSISTANT TUBERCULOSIS OFFICERS
DISPENSARY WORK.
PULMONARY HOSPITAL. (50 beds)
SPECIAL FORMS OF TREATMENT (e.g. Artificial Pneumothorax, Sanocrysin, Phrenic Evulsion)
ISOLATION OF INFECTIVE CASES FROM DISPENSARY AREA.
DIAGNOSIS OF DIFFICULT CASES.
X-RAY EXAMINATIONS AND LABORATORY.
CHIEF & BRANCH DISPENSARIES. Examinations, Consultations, Diagnosis, Special Treatment, X-Ray Exams., Artificial Light, Artificial Pneumothorax Refills, Laboratory, Two Clerks.
VISITS TO PATIENTS' HOMES. Examinations, Diagnosis, Special Treatment, Consultations.
TUBERCULOSIS HEALTH VISITORS. Dispensary Sessions, Artificial Light Sessions, Home Visits, Housing Conditions, Care Committees, Actual Nursing.
RESEARCH, PROPAGANDA, VOLUNTARY CARE COMMITTEES.
VISITS TO SANATORIA AND HOSPITALS IN AREA.

The remainder of this chapter summarises the work done through the dispensary organisation during the year 1930.

CENSUS OF CASES UNDER SUPERVISION ON 31ST DECEMBER, 1930.

Table 14 shows the total number of persons in each area who were suffering or suspected to be suffering from tuberculosis, and who were under the supervision of the dispensary staff at the end of 1930. As a matter of interest, the number of cases per 1,000 of the population has also been calculated for each area.

TABLE 14.—*Tuberculous Cases on Dispensary Registers on 31st Dec., 1930 (including 906 patients in Sanatoria and Hospitals).*

Dispensary Area.	Estimated Population, 31–12–30.	Number of Cases under Supervision on 31–12–30.						No. of Cases of Tuberculosis under supervision per 1,000 of Population.	No. of Doubtful Cases on 31–12–30.
		Sex.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total No. of Cases.		
			Under 15 years of age.	15 years and over.	Under 15 years of age.	15 years and over.			
No. 1	263,206	M	41	238	111	124	1055	4·00	5
		F	20	211	138	172			
No. 2	350,103	M	6	340	89	157	1129	3·22	4
		F	12	259	89	177			
No. 3	375,295	M	24	479	153	200	1692	4·50	—
		F	25	435	116	260			
No. 4	346,074	M	24	517	153	210	1654	4·77	—
		F	13	360	129	248			
No. 5	371,131	M	77	562	239	184	1975	5·32	9
		F	86	427	164	236			
Furness	38,301	M	18	89	17	18	270	7·04	1
		F	15	72	14	27			
Fylde	62,850	M	6	91	60	42	402	6·39	5
		F	9	100	45	49			
TOTAL	1,806,960	M	196	2316	822	935	8177	4·52	24
		F	180	1864	695	1169			
			4556		3621				

The particulars of the patients on the County register at the end of the year have been further sub-divided in the following tables so as to show the classification, whether active or quiescent, age-group and sex.

TABLE 15.—*Analysis of Cases on the Dispensary Registers on the 31st December, 1930 (Population of Administrative County 1,806,960).*

(*a*) PULMONARY TUBERCULOSIS.

Age-Groups.	Sex.	T.B. Minus.		T.B. Plus 1.		T.B. Plus 2.		T.B. Plus 3.		TOTAL.	
		Active.	Quies.	Active.	Quies.	Active.	Quies.	Active.	Quies.	Active.	Quies.
0–5 years ...	M.	1	3	—	—	—	—	—	—	1	3
	F.	4	2	—	—	—	—	—	—	4	2
5–15 years ...	M.	56	127	2	1	3	1	2	—	63	129
	F.	56	103	2	1	8	—	4	—	70	104
15–25 years ...	M.	81	182	27	18	105	16	26	4	239	220
	F.	90	171	41	20	160	30	30	1	321	222
25–35 years ...	M.	64	110	78	48	167	41	28	3	337	202
	F.	76	163	60	41	189	32	21	2	346	238
35–45 years ...	M.	62	107	67	68	156	34	28	2	313	211
	F.	40	114	33	36	111	25	15	1	199	176
45–55 years ...	M.	60	114	49	53	144	32	26	—	279	199
	F.	36	74	17	14	65	17	5	3	123	108
55–65 years ...	M.	44	55	14	16	81	23	22	3	161	97
	F.	16	26	9	9	28	8	6	1	59	44
65 and over ...	M.	6	17	2	6	16	6	4	1	28	30
	F.	8	7	—	1	8	3	1	—	17	11
All Ages ...	M.	374	715	239	210	672	153	136	13	1421	1091
	F.	326	660	162	122	569	115	82	8	1139	905
GRAND TOTAL ...		2075		733		1509		239		4556	

(*b*) NON-PULMONARY TUBERCULOSIS.

Age-Groups.	Sex.	Bones and Joints (excluding Spine).		Spine.		Abdomen.		Other Organs.		Peripheral Glands.		Skin.		TOTAL.	
		Act.	Quies	Act.	Quies	Act.	Quies	Act.	Quies	Act.	Quies	Act.	Quies	Act.	Quies
0 5 years ...	M.	13	6	4	1	5	10	—	4	34	27	1	1	57	49
	F.	11	1	7	—	6	8	—	1	17	26	—	—	41	36
5–15 years ...	M.	62	75	33	23	29	69	3	8	115	257	34	8	276	440
	F.	62	53	26	20	21	40	4	4	124	233	25	6	262	356
15–25 years ...	M.	70	102	24	22	6	29	9	8	48	134	41	16	198	311
	F.	41	67	10	15	29	31	5	3	84	192	47	25	216	333
25–35 years ...	M.	29	35	13	8	9	10	10	9	19	44	20	9	100	115
	F.	23	32	20	7	10	20	4	2	48	89	24	20	129	170
35–45 years ...	M.	14	14	8	8	2	2	8	10	5	14	14	7	51	55
	F.	13	10	11	5	3	6	8	2	12	26	20	17	67	66
45–55 years ...	M.	13	11	4	3	1	1	4	1	2	5	7	3	31	24
	F.	15	8	5	5	2	1	2	—	9	19	26	15	59	48
55–65 years ...	M.	9	4	2	—	—	—	1	3	1	2	3	1	16	10
	F.	8	5	4	2	1	—	—	—	7	8	12	5	32	20
65 and over ...	M.	9	5	1	—	—	—	1	1	1	—	5	1	17	7
	F.	7	2	—	2	—	1	—	—	—	3	9	5	16	13
All Ages ...	M.	219	252	89	65	52	121	36	44	225	483	125	46	746	1011
	F.	180	178	83	56	72	107	23	12	301	596	163	93	822	1042
GRAND TOTAL...		829		293		352		115		1605		427		3621	

This fairly detailed analysis of the numbers of tuberculous cases would be of greater interest if other authorities published similar information and so enabled valuable comparison to be made.

STATISTICS REQUIRED BY MINISTRY OF HEALTH.

By Memorandum 37/T, issued in September, 1925, the Ministry require certain information concerning the work done at tuberculosis dispensaries. These statistics, in the compulsory Table I. of the Memorandum, are given in Appendix IV. of this report.

TUBERCULOSIS DISPENSARIES AND STAFF.

Table A, here inserted, shows the dispensary areas with the populations, present staffs, the addresses of the 24 dispensaries at present in use, and the days and times on which they are open.

TUBERCULOUS EX-SERVICEMEN.

Of the 8,177 patients under supervision of the dispensary staff at the end of 1930, 261 were discharged sailors, soldiers or airmen whose disease was held by the Ministry of Pensions to be attributable to or aggravated by service in the Great War, a pension being granted for the disability. The number of these tuberculous pensioners is declining, falling from 1,017 at the end of 1922 to the figure of 261 mentioned above.

EVENING SESSIONS AT DISPENSARIES.

As in previous years, the evening sessions have been regularly held at most of the dispensaries for the convenience of patients who are at work during the day.

ARTIFICIAL LIGHT TREATMENT.

A report on the work done at the artificial light centres established at twelve of the dispensaries is given in Chapter IX.

TUBERCULOSIS OFFICERS' VISITS TO SANATORIA AND HOSPITALS.

Periodical visits (mostly monthly) have continued to be paid by one or other of the consultant tuberculosis officers to the majority of the pulmonary hospitals, non-County sanatoria, and special hospitals treating County patients. These visits are of mutual help, inasmuch as they keep in touch the medical superintendent and the tuberculosis officer, who are able to confer on the patients' future treatment, the home circumstances, the provisions of the County scheme, and so on.

The following is the rota of visits for 1931 :—

Dr. A. D. Brunwin	Wilkinson Sanatorium, and Shropshire Orthopædic Hospital.
Dr. B. MacPhee	Eastby Sanatorium ; Liverpool Open-air Hospital for Children, Leasowe ; Royal Liverpool Children's Hospital, Heswall and Thingwall Branches ; Children's Convalescent Home, West Kirby ; and Halifax Sanatorium.

TABLE A.

DISPENSARY ORGANISATION.

AREAS, MEDICAL STAFF, NURSING STAFF, DISPENSARIES, AND TIMES OF DISPENSARY SESSIONS.

LANCASHIRE COUNTY COUNCIL.

Table A.—List of Tuberculosis Dispensaries in use in October, 1931, and the Tuberculosis Officers for the Dispensary Areas.

Dispensary Area No.	SANITARY DISTRICTS.			Estimated Civilian Population 31/12/30.	MEDICAL STAFF October, 1931.	NURSING STAFF.	DISPENSARIES (Chief and Branch).	Days and Hours of DISPENSARY SESSIONS (Distinct from Home Visiting, attending Sanatoria, Hospitals and Care Committees, etc.).
1	Adlington Blackrod Carnforth Chorley (B.) Chorley (R.) Croston Fulwood Garstang (R.), Part of, consisting of parishes of— Barnacre-with-Bonds Bilsborrow Bleasdale	Garstang (R.) *cont.* Cabus Catterall Claughton Cleveley Forton Garstang Holleth Kirkland Myerscough Nateby Nether Wyresdale Winmarleigh	Horwich Lancaster (B.) Lancaster (R.) Leyland Longridge Lunesdale (R.) Lytham St. Annes (B.) Morecambe & Heysham (B.) Preston (R.) Walton-le-Dale Withnell Acreage 303,272	263,206	Dr. A. D. Brunwin, Tuberculosis Dispensary, 8 Middle Street, Lancaster. Assistant Tuberculosis Officer— Dr. G. H. Leigh.	Nurse L. Walker	LANCASTER (Chief), 8 Middle Street (Tel. No. 568). (X-ray Apparatus and Artificial Light Installation).	Monday, 11 a.m. Other days and evenings by appointment.
						Nurse F. D. Abbott Nurse G. M. Hunter	CHORLEY (Branch), 59 Gillibrand St. (Tel. No. 263). (Artificial Light Installation).	Monday by appointment. Thursday, 11 a.m. 2nd Tuesday evening of month by appointment.
						Nurse J. Skelcher	PRESTON (Branch), 22 Bolton Street (Tel. No. 4868). (Artificial Light Installation).	Wednesday, 11 a.m. Monday evening before 2nd Tuesday of month by appointment.
	FURNESS SUB-AREA— Dalton-in-Furness Grange-over-Sands	Ulverston	Ulverston (R.) Acreage 140,558	38,301	Dr. G. Leggat, High Carley Sanatorium, near Ulverston (Tel. No. 110 Ulverston).	Nurse E. A. Duston	ULVERSTON (Branch), Virginia House, Queen Street (Tel. No. 145). (Artificial Light Installation). (X-ray Apparatus at High Carley Sanatorium).	Tuesday, 10 a.m. Thursday, 10 a.m.
	FYLDE SUB-AREA— Fleetwood Fylde (R.) Garstang (R.), Part of, consisting of parishes of— Great Eccleston Hambleton	Garstang (R.) *cont.* Inskip-with-Sowerby Out Rawcliffe Pilling Stalmine-with-Stainall Upper Rawcliffe	Kirkham Poulton-le-Fylde Preesall Thornton Cleveleys Acreage 72,075	62,850	Dr. G. B. Charnock, Elswick Sanatorium, near Kirkham (Tel. No. 22 Great Eccleston).	Nurse A. Tweedy	FLEETWOOD (Branch), 23 Poulton Rd. (Tel. No. 282). (Artificial Light Installation). (X-ray Apparatus at Elswick Sanatorium).	Tuesday, 10 a.m.
2	Accrington (B.) Bacup (B.) Barrowford Blackburn (R.) Brierfield Burnley (R.) Church	Clayton-le-Moors Clitheroe (B.) Clitheroe (R.) Colne (B.) Darwen (B.) Great Harwood Haslingden (B.)	Nelson (B.) Oswaldtwistle Padiham Rawtenstall (B.) Rishton Trawden Turton Acreage 177,578	350,103	Dr. B. MacPhee, Tuberculosis Dispensary, 39 Avenue Parade, Accrington. Assistant Tuberculosis Officers— Dr. S. C. Adam Dr. F. C. S. Bradbury	Nurse L. F. Norwood Nurse E. Watterson	ACCRINGTON (Chief), 39 Avenue Parade (Tel. No. 2443). (removing at the end of 1931 to High Lea, Whalley Road, Accrington).	Tuesday, 2 p.m. Wednesday, 2 p.m. 2nd Tuesday of month, 6 p.m.
						Nurse M. Duggan	DARWEN (Branch), 20 Railway Road (Tel. No. 408). (X-ray Apparatus).	Monday, 10 a.m.
						Nurse A. Munro Nurse H. M. Alcock	NELSON (Branch), 64 Carr Road (Tel. No. 507). (Artificial Light Installation).	Tuesday, 2 p.m. Friday by appointment.
						Nurse R. Lambert	STACKSTEADS (Branch), Knott Hill House (Tel. No. 201 Bacup). (Artificial Light Installation).	Monday, 2 p.m. 1st Monday of month, 6 p.m.
3	Ashton-under-Lyne (B.) Audenshaw Bury (R.) Chadderton Crompton Denton Droylsden Failsworth	Heywood (B.) Lees Limehurst (R.) Littleborough Middleton (B.) Milnrow Mossley (B.) Norden	Prestwich Radcliffe Ramsbottom Royton Tottington Wardle Whitefield Whitworth Acreage 87,025	375,295	Dr. G. Fletcher, Tuberculosis Dispensary, Boston House, Warrington Street, Ashton-under-Lyne. Assistant Tuberculosis Officers— Dr. C. Berry Dr. J. Cathcart	Nurse C. Guilfoy Nurse H. Dewsnap Nurse M. Sherwen	ASHTON-UNDER-LYNE (Chief), Boston House, Warrington Street (Tel. No. 1775). (X-ray Apparatus and Artificial Light Installation).	Monday, 10-30 a.m. for X-ray examinations. Tuesday, 2-30 p.m. Friday, 10 a.m. 1st Tuesday of month, 6-30 p.m.
						Nurse M. A. Potter	MIDDLETON (Branch), 71 Manchester Old Road (Tel. No. 2706).	Friday, 2-30 p.m. 2nd Friday of month, 6-30 p.m.
						Nurse M. Sherwen	MOSSLEY (Branch), Park Lodge.	Tuesday, 11 a.m.
						Nurse I. F. MacDonald	OLDHAM (Branch), 25 Barker Street (Tel. No. 1671 Main).	Monday, 2-30 p.m. Wednesday, 10 a.m. 2nd Monday of month, 6-30 p.m.
						Nurse A. Flynn Nurse M. Sherwen	RADCLIFFE (Branch), 41 Darbyshire Street (Tel. No. 2323). (Artificial Light Installation).	Wednesday, 2 p.m. 3rd Wed. of month, 6-30 p.m.
						Nurse W. Swift	ROCHDALE (Branch), 168 Drake St., (Tel. No. 3892).	Thursday, 10-30 a.m. 2nd Thursday of month, 6-30 p.m.
4	Atherton Barton-upon-Irwell (R.) Eccles (B.) Farnworth Irlam Kearsley	Leigh (B.) Leigh (R.) Little Hulton Little Lever Stretford	Swinton and Pendlebury Tyldesley-with-Shakerley Urmston Westhoughton Worsley Acreage 58,747	346,074	Dr. G. Jessel, Tuberculosis Dispensary, 13 Church Street, Leigh. Assistant Tuberculosis Officers— Dr. A. B. Jamieson Dr. H. J. Villiers	Nurse I. M. Corfield Nurse M. Gibson	LEIGH (Chief), 13 Church Street (Tel. No. 258).	Wednesday, 9-30 a.m. Friday, 9-30 a.m. 2nd Thurs. of month, 6-30 p.m.
						Nurse M. B. Jones Nurse H. M. Shakespeare	ECCLES (Branch), 28 and 30 Gilda Brook Road (Tel. No. 3533). (X-ray Apparatus and Artificial Light Installation).	Tuesday, 2 p.m. : 2-30 p.m. for X-ray examinations. Thursday, 2-30 p.m. for X-ray examinations. Friday, 9-30 a.m. 1st Wed. of month, 6-30 p.m.
						Nurse F. G. Smith	FARNWORTH (Branch), 19-23 Darley Street (Tel. No. 63).	Tuesday, 9-30 a.m. Friday, 2 p.m. 3rd Thurs. of month, 6-30 p.m.
						Nurse A. Dickinson	PENDLEBURY (Branch), 121 Station Road (Tel. No. 1895 Swinton).	Monday, 2 p.m. Last Thurs. of month, 6-30 p.m.
						Nurse K. Blakemore	STRETFORD (Branch), 14 Derbyshire Lane (Tel. No. 2010 Longford).	Tuesday, 9-30 a.m. Thursday, 9-30 a.m. Last Monday of month, 6-30 p.m.
5	Abram Ashton-in-Makerfield Aspull Billinge and Winstanley Formby Golborne Great Crosby Haydock Hindley Huyton-with-Roby	Ince-in-Makerfield Litherland Little Crosby Newton-in-Makerfield Ormskirk Orrell Prescot Rainford Sefton (R.)	Skelmersdale Standish-with-Langtree Upholland Warrington (R.) Waterloo-with-Seaforth West Lancashire (R.) Whiston (R.) Widnes (B.) Wigan (R.) Acreage 211,075	371,131	Dr. C. W. Laird, Tuberculosis Dispensary, 7 Claremont Road, Seaforth. Assistant Tuberculosis Officers— Dr. C. H. Lilley Dr. J. L. Armour	Nurse A. Duncan	SEAFORTH (Chief), 7 Claremont Road (Tel. No. 688 Waterloo). (X-ray Apparatus).	Monday, 3 to 4-30 p.m. Thursday, 10-30 a.m. for X-ray examinations. Friday, 10 to 11-30 a.m. 3rd Thursday of month, 6 p.m
						Nurse E. Walch Nurse L. Farquhar Nurse M. J. McKeown	ST. HELENS (Branch), 90 Hardshaw Street (Tel. No. 916). (Artificial Light Installation).	Tuesday, 3 to 4-30 p.m. Last Tues. of month, 6 to 7 p.m.
						Nurse M. J. Wilson	WIDNES (Branch), Brendan House, Widnes Road (Tel. No. 156).	Monday, 10 to 11-30 a.m. Friday, 2-30 to 4-30 p.m. 1st Wed. of month, 6 to 7 p.m.
						Nurse E. Walters Nurse M. J. Evans	WIGAN (Branch), 3 Mesnes Park Terrace (Tel. No. 1172). (Artificial Light Installation).	Monday, 9-30 a.m. Thursday, 9-30 a.m. 4th Thurs. of month, 6-30 p.m.
			Total acreage of Admin. County 1,050,889	1,806,960				

Dr. G. Fletcher	Aitken Sanatorium, and King Edward VII. Hospital for Crippled Children, Sheffield.
Dr. G. Jessel	Warwickshire Orthopædic Hospital.
Dr. C. W. Laird	East Lancashire Tuberculosis Colony.
Dr. E. H. A. Pask	Meathop Sanatorium.
Dr. G. Leggat	Liverpool Open-air Hospital for Children, Leasowe; Royal Liverpool Children's Hospital, Heswall and Thingwall Branches; and Children's Convalescent Home, West Kirby.
Dr. G. H. Leigh	King Edward VII. Hospital for Crippled Children, Sheffield.
Dr. C. H. Lilley	Shropshire Orthopædic Hospital.

SUMMARY OF DISPENSARY WORK DONE BY TUBERCULOSIS OFFICERS IN 1930, SHOWING COMPARISON WITH 1929.

	1929	1930
VISITS BY TUBERCULOSIS OFFICERS TO PATIENTS' HOMES—		
(*a*) Number of new persons (including new contacts) examined for diagnosis or expert opinion	1,510	1,271
(*b*) Number of re-examinations of "old" cases and "old" contacts—		
1. Respecting continued general supervision or dispensary treatment	3,673	3,786
2. Contacts respecting diagnosis	5	12
3. Other cases respecting diagnosis	151	174
4. For special forms of treatment or examinations resulting therefrom—		
Aspirations...	18	14
Adjustment of splints and surgical appliances ...	309	348
Lupus cases	44	34
Pneumothorax (induction and refills)	1	40
Other forms	40	9
	5,751	5,688
DISPENSARY ATTENDANCES BY PATIENTS—		
(*a*) Number of new persons (including new contacts) examined for diagnosis or expert opinion	4,001	4,124
(*b*) Number of re-examinations of "old" cases and "old" contacts—		
1. Respecting continued general supervision or dispensary treatment	14,112	14,667
2. Contacts respecting diagnosis	348	365
3. Other cases respecting diagnosis	2,149	2,279
4. For special forms of treatment or examinations resulting therefrom—		
Artificial light (Lancaster, Chorley, Preston, Nelson, Stacksteads, Ashton-under-Lyne, Radcliffe, Eccles, St. Helens, Wigan, Ulverston and Fleetwood Dispensaries)	37,113	38,703
Aspirations	69	123
Adjustment of splints and surgical appliances ...	774	1,014
Lupus cases	478	493
Pneumothorax (induction and refills)	121	268
Tuberculin	267	199
Other forms	176	376
	59,608	62,611

X-Ray Examinations made at County Dispensaries and Institutions—	1929	**1930**
(*a*) Dispensary patients	5,883	6,530
(*b*) Institutional patients	2,143	4,174
	8,026	10,704
Examinations of Sputum at County Dispensaries	5,622	5,591
Number of Recommendations by Tuberculosis Officers—		
1. Sanatorium or hospital treatment	1,762	1,894
2. Dispensary treatment or general supervision	10,180	10,048
3. Provision of special nourishment	1,606	1,662
4. Provision of surgical appliances	166	160
5. Loan of shelters	12	15
6. Diagnosis not confirmed—		
(*a*) Notified cases	164	182
(*b*) Non-notified cases	6	8
7. Cases written off the register as refusing treatment	40	33
8. Pulmonary cases written off the register as recovered	263	326
9. Non-pulmonary cases written off the register as recovered	368	550
Care Committee Meetings Attended by—		
(*a*) Tuberculosis officers	91	91
(*b*) Tuberculosis health visitors	160	161
Lectures or Addresses Given on Tuberculosis	8	13
Visits by Tuberculosis Officers to Sanatoria, and Pulmonary, Special, and Public Assistance Hospitals	258	311
Special Visits by Tuberculosis Officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.)	97	83
Examinations of Entrants to Industry under Sandstone Industry (Silicosis) Scheme, 1929	3	113
Visits by Dispensary Nurses to Patients' Homes—		
Routine visits	38,336	37,313
Actual nursing	1,357	1,475
Application of surgical dressings	1,440	1,524
Adjustment of splints and surgical appliances	1,743	1,832
	42,876	42,144
Patients' Dispensary Attendances for Attention by Nurses—		
Application of surgical dressings	2,796	2,394
Adjustment of splints and surgical appliances	529	712
	3,325	3,106

Provision of Special Nourishment.

During the year, 1,662 grants of special nourishment (subject to certain conditions, published in the 1924 report) for varying periods were made to 764 individual patients as part of their medical treatment. The figures in 1929 were 1,606 grants to 682 patients.

HOUSING.

The following table shows the housing conditions of all patients under treatment or supervision at the end of 1930. Whilst every effort is made to secure that infectious cases occupy a separate room, or at least a separate bed, no useful purpose is served by making the same insistence in regard to patients with the disease quiescent or arrested. The non-pulmonary cases are given separately, and only a very small number indeed may be considered infectious.

TABLE 16.—*Housing Statistics of 8,177 County Patients.*

		Patients occupying a separate bedroom.	Patients occupying a separate bed, but not a separate bedroom.	Patients not occupying a separate bed.
Number of Pulmonary cases *considered infectious.*	Under 15 years	8	10	3*
	15 and over ...	1,290	446	109*
Number of Pulmonary cases *not* considered infectious.	Under 15 years	49	164	142
	15 and over ...	861	459	1,015
Number of Non-pulmonary cases.	Under 15 years	156	619	742
	15 and over ...	555	469	1,080
TOTAL ...	Under 15 years	213	793	887
	15 and over ...	2,706	1,374	2,204

* 39 of these 112 cases were isolated in sanatoria or pulmonary hospitals at the end of 1930.

It will be seen that 112 patients (including three children) suffering from pulmonary tuberculosis and considered to be infectious were not occupying a separate bed when at home at the time the census of the housing conditions was made at the end of 1930. Of this number, 39 were away from home and isolated in pulmonary hospitals or sanatoria, leaving (from a total of 1,866 infectious cases) 73, or 3·9 per cent., infectious cases at home not occupying a separate bed. This is the lowest percentage so far attained.

Appendix III. of this report shows the housing conditions of the patients in each dispensary area.

EXAMINATION OF HOUSE CONTACTS.

By the systematic examination of house contacts, particularly among those of patients with positive sputum, many early or unsuspected cases of tuberculosis are detected. Owing to indifference or unwillingness, considerable difficulty—which, however, is gradually being overcome—is experienced in persuading contacts to come to the dispensary for examination, or even to submit themselves for examination at all.

By direction of the Ministry of Health (Memo. 121/T) cases are regarded as contacts only if the cause of their being examined is the fact that they have recently been, or still are, living in contact with some dispensary patient or other notified case; many persons suffering, or suspected to be suffering, from tuberculosis who attend at the dispensary of their own accord, or who are referred by a private medical practitioner, may give a history of previous contact with a known case of tuberculosis, but this does not bring them within the definition of " contacts."

The following Table 17 shows the number of new contacts which have been examined in the Administrative County during 1930 :—

	Diagnosed as Tuberculous.		Doubtful.	Non-tuberculous.	Total.
	Pulmonary.	Non-pulmonary.			
Examined at Home ...	4	6	3	70	83
Examined at Dispensary	34	11	22	693	760
Total	38	17	25	763	843
	55				

Of the 843 new contacts examined during the year, 55 were ultimately diagnosed as definite cases of tuberculosis—pulmonary 38, and non-pulmonary 17. These cases are equal to 65·24 per 1,000 of contacts examined, as against the proportion of 4·52 tuberculous persons per 1,000 of the population known to the dispensary staff in the County. Thus, the examination of selected contacts revealed many more tuberculous cases proportionately than would be found in the ordinary population.

It may be stated that of the 38 pulmonary cases, 47 per cent. were found with a positive sputum.

PROVISION OF BEDSTEADS, MATTRESSES, AND NURSING REQUISITES.

In each County dispensary area a small stock of bedsteads, mattresses (but not bedding), and nursing requisites belonging to the County Council is available for loan to necessitous patients undergoing home treatment.

The bedsteads and mattresses, which are held at the disposal of the consultant tuberculosis officers, have proved of valuable assistance in securing the better sleeping accommodation at home of persons with pulmonary tuberculosis considered to be infectious.

The table following shows the number of these articles owned by the County Council, and also the number of patients who have been granted the use of the articles :—

TABLE 18.

Articles.	Quantity owned by County Council, 31/12/30.	Number of patients to whom articles have been loaned during 1930.	Articles in possession of patients on 31/12/30.
Bedsteads	200	40	167
Mattresses	194	45	171
Mattress Covers	149	27	115
Air Beds	5	9	—
Air Cushions	160	219	83
Air Pillows	1	—	—
Air Pumps	2	3	—
Bath Chairs...	6	1	2
Bed Cradles	6	1	—
Bed Pans	99	99	44
Bed Rests	59	49	24
Bed Slippers	73	26	12
Extension Apparatus	15	1	—
Fracture Boards	2	—	—
Ground Sheets	40	4	14
Hot Water Bottles, Rubber ...	8	3	1
Ice Bags	2	—	—
Rest Chairs	3	1	1
Rubber Sheeting	24 yds.	4	6 yds.
Rubber Sheets	6	1	1
Spinal Boxes	21	5	1
Spinal Carriages	15	6	1
Splints	18	3	2
Urinals...	115	63	51
Water Beds...	14	5	1

X-RAY WORK.

X-ray installations for use by the tuberculosis officers for the examination of patients are provided at the following dispensaries :—Lancaster, Darwen, Ashton-under-Lyne, Eccles and Seaforth ; also at the following sanatoria or hospitals :—High Carley, Elswick, Peel Hall, Rufford, and Withnell.

The following statement shows the X-ray work done during 1930, compared with previous years :—

TABLE 19.

	1924.	1925.	1926.	1927.	1928.	1929.	1930.
At County dispensaries and institutions :							
(*a*) Dispensary patients ...	4045	3899	4440	5239	6191	5883	6530
(*b*) Institutional patients...	160	205	351	617	1244	2160	4174
At Manchester	24	11	—	—	—	—	—
Total	4229	4115	4791	5856	7435	8043	10704

The increase in the number of examinations is mainly due to greater application of artificial pneumothorax treatment which is controlled by X-rays.

The policy of placing an apparatus in each dispensary area for use by the tuberculosis officer himself is, from experience, found to be the best method, because the tuberculosis officer, with his knowledge of the patient's history and clinical signs, is most fitted to make a correct interpretation of the skiagrams.

EXAMINATION OF SPUTUM.

As an aid to diagnosis, arrangements are in existence for the examination, free of cost, of specimens of sputum sent by medical attendants. At each chief dispensary a small laboratory is installed for this work, whilst, in addition, an arrangement exists with the Director of the Public Health Laboratory, Manchester, for the examination of specimens including inoculation tests.

The following statement shows the results of the examinations made in 1930, compared with the previous year :—

	At Dispensary Laboratories.		At Public Health Laboratory, Manchester.	
	1929.	1930.	1929.	1930.
Positive (*i.e.*, tubercle bacilli present) ...	1,093	1,112	151	146
Negative (*i.e.*, tubercle bacilli not found) .	4,529	4,479	373	347
Total	5,622	5,591	524	493

SPECIAL SURGICAL APPLIANCES.

During 1930 the following surgical appliances were supplied to patients on the recommendation of the tuberculosis officers :—

Abdominal belts, 2 ; abduction frames, 4 ; aluminium splint, 1 ; ankle splints, 4 ; artificial legs, 4 ; back splint, 1 ; back supports, 6 ; Burney Yeo inhaler, 1 ; caliper splints, 23 ; crutches, 20 pairs ; finger splint, 1 ; foot splints, 4 ; gutter splint, 1 ; hand splints, 2 ; hip splints, 10 ; knee splints, 11 ; leather spicas, 2 ; leg splint, 1 ; Palmer splint, 1 ; pattens, 9 ; tracheotomy tube, 1 ; spinal collars, 4 ; spinal cuirasses, 3 ; spinal frames, 5 ; spinal jackets, 2 ; spinal supports, 19 ; surgical boots, 34 ; Taylor's braces, 4 ; thigh splint, 1 ; thumb splint, 1 ; urinals, 2 ; walking splints, 2 ; wrist splint, 1.

Sleeping Shelters.

There were, at the end of the year, 48 shelters in use by patients at their homes.

The loan of sleeping shelters is made to suitable cases on the recommendation of the tuberculosis officer, after careful consideration of the following points : (1) the condition of the patient and his ability to use the shelter properly ; (2) the position of the shelter ; (3) the home conditions of the patient ; and (4) the means of communication with the nearest inhabited building in case of a sudden relapse.

The number of persons in 1930 who were allowed the use of the shelters was 64.

I have to thank medical officers of health and sanitary inspectors throughout the County for much valuable help in connection with the removal, disinfection, and re-erection of shelters used by County patients.

XII.—REPORT FOR DISPENSARY AREA No. 1.

(including Lancaster Pulmonary Hospital).

Area (estimated population 263,206) embraces Lancaster, Morecambe and Heysham, Lytham St. Annes, Garstang Rural (part), Preston Rural, Walton-le-Dale, Chorley, and Horwich districts.

Consultant Tuberculosis Officer ... ... Dr. A. D. Brunwin.
(Dr. Brunwin was also visiting physician to the Lancaster Pulmonary Hospital).

Assistant Tuberculosis Officer ... ... Dr. G. H. Leigh.

Dr. Brunwin reports :—

The work of Area No. 1 has been rendered very difficult owing to my prolonged illness during the early part of the year ; and, in addition to this, Dr. Leigh had to relieve at Barrowmore Hall Sanatorium, during Dr. Sandiland's illness. I am glad to say that, owing to the special efforts of my staff, the work of the area has not suffered appreciably.

From the public health point of view the advanced and very ill case is not the most dangerous, but the sputum positive case that feels fairly well and insists on working and living a normal life, often for a number of years, is the most difficult problem. Such cases are by no means uncommon, and are a serious source of danger in the spread of infection in workshops, places of entertainment, and even in their own homes.

The voluntary care committees at Lancaster, Chorley and Horwich have continued their valuable work.

During the year I have given trial to two new methods of treatment, namely Santuben and inhalation of powdered calcium ; these are dealt with on pages 17 and 18.

Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 1 :—Lancaster (15th July, 1925), Chorley (14th October, 1926), and Preston (29th November, 1927).

Light treatment continues to be given at Lancaster, Preston, and Chorley, but the number of cases treated tends to diminish. The majority of cases consist of enlarged glands of the neck. For cases of enlarged glands, before light treatment is advised, attention to the teeth, tonsils, scalp, etc., is insisted on, while the question of vitamin deficiency is carefully considered.

Those patients who are not suitable for operative treatment as a rule do very well on light treatment which considerably expedites their recovery.

The treatment of lupus is more difficult ; light treatment almost always holds this disease in check, and usually considerably improves it. To effect a cure a long and intensive period of irradiation is necessary with often some form of operative treatment and the application of caustic acids and special ointments. This ancillary treatment entails close personal attention and makes the treatment of lupus cases a difficult and specialised problem, especially as most of the sufferers are otherwise in good health and working. Thus, many of them find it difficult, and others are disinclined, to attend the clinics.

Dr. Leigh, who is in charge of the light treatment at Chorley Dispensary, reports as follows :—

The carbon arc lamp is reserved for the severe cases and the mercury vapour lamps serve for the treatment of the milder forms of tuberculosis, principally tuberculosis of glands in children. The maximum time of exposure is one hour, and the treatment is given twice a week.

The cases of lupus were slow in their reaction to the treatment.

One of the cases of multiple bone lesions was treated while awaiting admission to a special hospital, and, although her general condition was poor at the commencement of treatment, very considerable improvement resulted before her turn for admission arrived thus shortening the period of institutional treatment required.

In a patient suffering from a nodular form of tuberculosis of the skin of three years' duration, the disease was rendered quiescent with complete disappearance of the nodules after a short period of treatment.

The light treatment has thus been of continued use in connection with the dispensary work and has well repaid the time and care taken in its administration.

The following Table 20 shows the results for patients treated at these dispensary centres during 1930 :—

(*a*) *Lancaster Centre.*

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	9	3	3	—	—	1	2
Adenitis with abscess formation and skin involvement	8	2	2	1	—	1	2
Adenitis without softening	5	2	—	2	—	—	1
Bones, joints and spine	7	2	1	1	—	2	1
Abdomen	2	—	—	—	—	2	—
TOTAL	31	9	6	4	—	6	6

(*b*) *Preston Centre.*

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	15	8	1	—	—	1	5
Adenitis with abscess formation and skin involvement	20	11	2	1	—	1	5
Adenitis without softening	8	2	—	3	—	2	1
Bones, joints and spine	9	2	2	—	—	1	4
Abdomen	1	—	—	—	—	1	—
Other non-pulmonary conditions ...	1	—	—	—	—	—	1
Pulmonary tuberculosis:— Sputum positive	2	—	—	—	2	—	—
TOTAL	56	23	5	4	2	6	16

(*c*) *Chorley Centre.*

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	14	2	—	1	—	2	9
Adenitis with abscess formation and skin involvement	27	12	2	—	—	5	8
Adenitis without softening	15	5	1	—	—	3	6
Bones, joints and spine	4	—	—	1	—	2	1
Abdomen	1	—	—	—	—	1	—
Other non-pulmonary conditions ...	3	—	1	—	—	—	2
Pulmonary and non-pulmonary combined: T.B. minus and adenitis without softening	1	1	—	—	—	—	—
TOTAL	65	20	4	2	—	13	26

* Includes: (1) any patient who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

LANCASTER PULMONARY HOSPITAL.

There is still an urgent need of a pulmonary hospital in the Lancaster district, and the delay in providing one is causing much hardship and suffering. It will be remembered that the Luneside Hospital was closed for tuberculous patients after the flooding in October, 1927; the replacement of the hospital on a new site originally proposed by the Lancaster Corporation will now be undertaken by a joint hospital board which is being constituted by mutual arrangement. The consultant tuberculosis officer for Area No. 1 will be the visiting physician of the tuberculosis block.

SUMMARY OF DISPENSARY WORK.

Number of tuberculous cases under supervision on 31st December, 1930 (Definitely tuberculous, 1055 ; doubtful, 5.) 1060

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of " *old* " *cases* and "*old*" *contacts.*
Patients' homes	250	1409
Lancaster Chief Dispensary	120	364
Chorley Branch Dispensary	161	826
Preston Branch Dispensary	100	558
	381	1748

Attendances of patients at dispensaries for artificial light treatment—

Lancaster Dispensary	786	5192
Chorley Dispensary	2438	
Preston Dispensary	1968	

Care committee meetings attended by—

(*a*) Tuberculosis officers	20
(*b*) Tuberculosis health visitors	35

Visits by tuberculosis officers to sanatoria and pulmonary, special and public assistance hospitals 16

Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.) 2

Visits by dispensary nurses to patients' homes—

Routine visits	3890	3901
Actual nursing	1	
Application of surgical dressings	6	
Adjustment of splints and surgical appliances	4	

Sanitary defects reported to the local medical officers of health 11

Sanitary defects which after notification were remedied 4

Disinfections carried out by local sanitary authorities 216

Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment 506

XIII.—REPORT FOR DISPENSARY AREA No. 2.

(including Withnell Pulmonary Hospital).

Area (estimated population 350,103) embraces Clitheroe, Colne, Nelson, Burnley Rural, Blackburn Rural, Accrington, Darwen, Haslingden, Rawtenstall, and Bacup districts.

Consultant Tuberculosis Officer ... ... Dr. B. MacPhee.

(Dr. MacPhee is also visiting medical superintendent of the Withnell Pulmonary Hospital).

Assistant Tuberculosis Officers ... ... Dr. S. C. Adam and Dr. F. C. S. Bradbury.

Dr. MacPhee reports :—

I am glad to be able to report that efforts to obtain property in Accrington more suitable for a chief dispensary have at last been successful, and premises known as " High Lea," Whalley Road, Accrington, have been secured.

At present the X-ray work is done under constantly recurring difficulties at the dispensary in Darwen. During the year 827 skiagrams were taken.

In the laboratory at the Accrington Dispensary, 1,240 specimens of sputum were examined during the year with the following results : Positive 236 ; negative 1,004. In order to assist in the diagnosis of difficult cases, 27 pathological specimens were sent to Manchester for inoculation tests : Positive 9 ; negative 18.

Under the very helpful scheme for the visitation of non-County institutions, quarterly visits were made by Dr. Adam and myself to the King Edward VII. Hospital for Crippled Children, Sheffield. Monthly visits were also made to Eastby Sanatorium, and bi-monthly visits to the Halifax Sanatorium. Such places as the Burnley Pulmonary Hospital and the Public Assistance Hospitals at Rawtenstall, Burnley and Clitheroe were visited either monthly or as occasion suggested, in order to consult with the medical superintendents.

The care committee in the Bacup and Rawtenstall area, and that in the Bromley Cross district have continued their useful work during the year.

Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 2 :—Stacksteads (9th January, 1928), and Nelson (20th November, 1928).

Stacksteads Centre. From the table following it will be observed that I have little of a dramatic nature to present. The quickest results are seen in cases of tuberculous adenitis and some of the cases of tuberculosis of the bones, but generally the main justification for the use of ultra-violet radiation in the treatment of tuberculosis must be sought for in its usefulness in the skin affections.

As far as the treatment at this centre is concerned, where the Jesionek and Kromayer lamps are alone in use, the procedure, as in former years, has been again carried out; there has been a small proportion of actual cures in lupus, with at the same time a progressive improvement in a large proportion of cases. Ancillary forms of treatment such as spiking and the use of specially prepared plasters have assisted.

Nelson Centre. An attempt has been made, I think with success, to increase the length of exposures to the carbon arc flame, and it is hoped that with the opening of the Accrington new dispensary and its light department—thus releasing a number of patients from Nelson, who are actually resident in the Accrington area—more attention will be devoted to individual cases. Further, it will be possible to give much longer exposures.

Here, as at Stacksteads, ancillary forms of treatment have been adopted—tuberculin, polyvalent vaccines and plasters.

In the ultra-violet radiation the main source has been the carbon arc supplemented by the Kromayer and Jesionek lamps.

The following Table 21 shows the results for patients treated at these dispensary centres during 1930:—

(*a*) *Stacksteads Centre.*

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	16	2	—	—	—	—	14
Adenitis with abscess formation and skin involvement	22	9	1	—	—	1	11
Adenitis without softening	19	10	1	—	—	—	8
Bones, joints and spine	11	2	1	—	—	3	5
Abdomen	2	2	—	—	—	—	—
Other non-pulmonary conditions ...	5	2	—	1	—	1	1
TOTAL	75	27	3	1	—	5	39

(*b*) *Nelson Centre.*

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	25	1	1	1	—	2	20
Adenitis with abscess formation and skin involvement	24	12	—	1	—	3	8
Adenitis without softening	19	8	2	2	—	2	5
Bones, joints and spine	8	3	—	2	—	1	2
Abdomen	1	—	—	—	—	—	1
Pulmonary tuberculosis:— Sputum negative	1	—	—	—	—	1	—
TOTAL	78	24	3	6	—	9	36

* Includes: (1) any patient who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

WITHNELL PULMONARY HOSPITAL, NEAR CHORLEY.

Matron: Miss D. Willman.

The County Council in December, 1924, purchased Withnell Hall (including two cottages, outbuildings, and 37 acres of land) situated on the main road from Blackburn to Chorley. The first patient was admitted on the 15th August, 1927. Accommodation is provided for 50 male patients (28 in cubicles, 16 in wards and 6 in shelters). The hospital serves mainly Dispensary Area No. 2. Three houses were erected on the estate for employees.

Dr. MacPhee reports as follows:—

During the year 88 patients were admitted to the institution, 62 were discharged, and 26 died. Included in the 88 admissions were 5 patients sent in for observation and treatment. The percentage of beds occupied was 97·7.

At the institution's laboratory 609 specimens of sputum were examined with the following results: Positive 268; negative 341.

The X-ray apparatus has again given constant and reliable service, 401 skiagrams having been taken and 335 screenings made.

As before, the ordinary routine work of the institution calls for little comment. I have again pleasure in recording that the work has been carried on smoothly, and treatment in selected cases has been continued on the lines indicated in last year's report.

The social side has not been neglected, and the patients have been entertained at various times throughout the year by the kindness of friends in bringing concert parties. The wireless and Kodascope have also proved a great attraction.

SUMMARY OF DISPENSARY WORK.

Number of tuberculous cases under supervision on 31st December, 1930 (Definitely tuberculous, 1129 ; doubtful, 4.)	1133

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of " *old* " *cases* and " *old* " *contacts*.
Patients' homes	277	286
Accrington Chief Dispensary	289	669
Darwen Branch Dispensary	50	131
Nelson Branch Dispensary...	258	533
Stacksteads Branch Dispensary	150	375
	747	1708

Attendances of patients at dispensaries for artificial light treatment—		
Nelson Dispensary	2783	6211
Stacksteads Dispensary	3428	
Lectures or addresses given		2
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals		43
Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.)		8
Visits by dispensary nurses to patients' homes—		
Routine visits ...	6364	7313
Actual nursing ...	372	
Application of surgical dressings	193	
Adjustment of splints and surgical appliances	384	
Patients' dispensary attendances for attention by nurses—		
Application of surgical dressings	1095	1576
Adjustment of splints and surgical appliances	481	
Sanitary defects reported to the local medical officers of health		32
Sanitary defects which after notification were remedied		30
Disinfections carried out by local sanitary authorities ...		1997
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment		807

XIV.—REPORT FOR DISPENSARY AREA No. 3.

Area (estimated population 375,295) embraces Ramsbottom, Littleborough, Radcliffe, Heywood, Crompton, Royton, Prestwich, Middleton, Chadderton, Failsworth, Ashton-under-Lyne, Mossley, and Denton districts.

Consultant Tuberculosis Officer ... ... Dr. G. FLETCHER.

Assistant Tuberculosis Officers ... ... Dr. C. BERRY and
Dr. J. CATHCART.

Dr. Fletcher reports :—

Perhaps the most important event during the year was the abolition of the Poor Law guardians. Arrangements were made with the clerks to local guardians committees to prevent overlapping in dealing with certain patients in necessitous circumstances, and steps were taken to secure co-operation with the medical superintendents of the institutions under the County Public Assistance Committee.

In September I gave evidence before the special committee of the Home Office on the effects of dust in cardrooms of cotton mills upon the respiratory organs of the operatives. This evidence is based on the examination of 100 cardroom workers at Ashton-under-Lyne Dispensary during the year, and it forms the subject of Chapter III. (see page 8).

The two voluntary care committees at Ashton-under-Lyne and Prestwich, and the Radcliffe and Whitefield District Relief Fund for Consumptives have dealt with necessitous cases in their areas. In all they have assisted 70 patients at a cost of £316. During the year the " Dr. J. Logan Stewart Memorial Fund " was closed, and the sum of £125 was invested with the Ashton-under-Lyne Corporation.

During the year, 1,985 skiagrams were taken, as compared with 2,169 in 1929. Prints or lantern slides were made of the more interesting conditions.

Refills were given at Ashton-under-Lyne Dispensary to patients in whom artificial pneumothorax had been induced at sanatoria.

There were 1,374 sputum examinations made at Ashton-under-Lyne Dispensary—344 positive and 1,030 negative. Where necesssary, Wassermann reactions and inoculation tests were performed at the Public Health Laboratory, Manchester.

Lectures were given by me at Ashton-under-Lyne, Radcliffe, and Middleton, and a tuberculosis section formed part of the health exhibition at Middleton.

As in former years, I have to thank my colleagues of the medical, nursing and clerical staffs for their assistance throughout the year, and I am indebted to the practitioners in the area for their co-operation in our work.

Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 3: Ashton-under-Lyne (11th September, 1925), and Radcliffe (20th July, 1928).

The light centres at *Ashton-under-Lyne* and *Radcliffe* have been conducted on the same lines as before, no material change being made in the equipment, staff, type of case selected, or methods of treatment.

The results obtained continue to indicate that light treatment is particularly helpful in cases of adenitis with abscess formation, disease of the peritoneum, tuberculosis of the skin and the smaller bones and joints.

The response to treatment naturally varies with the individual case. This is perhaps most noticeable with lupus. The great majority of lupus cases show improvement more or less marked. In a few instances, however, the disease remains very obstinate. One female patient has attended the light centre at Ashton-under-Lyne since November 1925, and during this period has had 526 general carbon arc exposures and 316 Kromayer applications, as well as a three years' course of tuberculin injections. Her disease, while less prominent than it was at the beginning of treatment, is still active and has indeed shown signs of extension at one point.

No positive sputum case was accepted for general light treatment at the light centres but a combined case (lungs and neck glands) received local treatment for the neck condition.

Light treatment is supplemented by various minor procedures such as the opening or aspiration of abscesses, the application of caustics, and the administration of vaccines. At Ashton-under-Lyne tuberculin was given to four patients, streptococcus vaccine to nine, and staphylococcus vaccine to two. At Radcliffe two patients received tuberculin treatment and one was given a course of streptococcus vaccine.

Patients in whom the disease has been arrested or cured remain under regular dispensary supervision and a further course of light treatment is given to cases which show any indication of recurrence. Thus, at Ashton-under-Lyne Dispensary, 143 quiescent and apparently well cases attended during the year for supervision, and two of these received a further prophylactic course of light treatment. There were five cases of relapse. Two of these had adenitis without abscess, one had adenitis with abscess, and one had disease of the bones of the foot. These four cases were again discharged as quiescent after a further course of light treatment. The fifth case (one of lupus) is again improving under light treatment.

At Radcliffe Dispensary two quiescent cases attended for supervision, and one was given further light treatment.

The following Table 22 shows the results for patients treated at these centres during 1930 :—

(*a*) *Ashton-under-Lyne Centre.*

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	28	2	—	—	—	3	23
Adenitis with abscess formation and skin involvement	51	23	—	—	—	3	25
Adenitis without softening	31	8	—	—	—	3	20
Bones, joints and spine	20	7	—	—	—	5	8
Abdomen	18	8	—	—	—	3	7
Other non-pulmonary conditions ...	3	—	—	—	—	—	3
Pulmonary tuberculosis :—							
Sputum negative	1	1	—	—	—	—	—
Bronchial glands	1	1	—	—	—	—	—
Pleura	2	2	—	—	—	—	—
Pulmonary and non-pulmonary combined :—							
† T.B. plus and adenitis with abscess formation	1	—	—	—	—	—	1
† T.B. minus and sternum ...	1	—	—	—	—	—	1
TOTAL	157	52	—	—	—	17	88

(*b*) *Radcliffe Centre.*

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	16	1	—	—	—	5	10
Adenitis with abscess formation and skin involvement	24	6	—	—	—	3	15
Adenitis without softening	6	3	—	—	—	2	1
Bones, joints and spine	3	—	—	—	—	—	3
Abdomen	3	2	—	—	—	1	—
Other non-pulmonary conditions ...	4	1	—	—	—	—	3
TOTAL	56	13	—	—	—	11	32

* Includes: (1) any patient who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

† Local treatment only for non-pulmonary condition.

Summary of Dispensary Work.

Number of tuberculous cases under supervision on 31st December, 1930 (Definitely tuberculous, 1692 ; doubtful, 0.)	1692

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of " *old* " *cases* and " *old* " *contacts.*
Patients' homes	145	501
Ashton-under-Lyne Chief Dispensary ...	444	3302
Middleton Branch Dispensary	102	391
Mossley Branch Dispensary	35	145
Oldham Branch Dispensary	257	1229
Radcliffe Branch Dispensary	163	799
Rochdale Branch Dispensary	208	564
	1209	6430

Attendances of patients at dispensaries for artificial light treatment—		
Ashton-under-Lyne Dispensary	8483	10828
Radcliffe Dispensary	2345	
Care committee meetings attended by—		
(*a*) Tuberculosis officers		9
(*b*) Tuberculosis health visitors		9
Lectures or addresses given		3
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals		101
Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.)		11
Visits by dispensary nurses to patients' homes—		
Routine visits	8023	9114
Actual nursing	577	
Application of surgical dressings	5	
Adjustment of splints and surgical appliances	509	
Patients' dispensary attendances for attention by nurses—		
Application of surgical dressings	32	138
Adjustment of splints and surgical appliances	106	
Sanitary defects reported to the local medical officers of health		85
Sanitary defects which after notification were remedied		42
Disinfections carried out by local sanitary authorities		413
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment ...		861

XV.—REPORT FOR DISPENSARY AREA No. 4.
(including Peel Hall Pulmonary Hospital).

Area (estimated population 346,074) embraces Westhoughton, Atherton, Farnworth, Leigh, Swinton and Pendlebury, Eccles, and Stretford districts.

Consultant Tuberculosis Officer ...	Dr. G. Jessel.

(Dr. Jessel is also visiting medical superintendent of Peel Hall Pulmonary Hospital).

Assistant Tuberculosis Officers ...	Dr. A. B. Jamieson and Dr. H. J. Villiers.

Dr. Jessel reports :—

The activities of the dispensary organisation may be briefly summarised as follow :—

(a) Diagnosis of new and suspected cases, including contacts. (b) Help and encouragement for patients after a diagnosis of tuberculosis has been made, both before and after institutional treatment is received. (c) Specialist medical treatment by tuberculosis officers.

(a) *Diagnosis.*—Accurate diagnosis is a primary essential. On the one hand early cases must not be missed, while on the other, heavy expenditure ought not to be incurred on behalf of persons who are not suffering from tuberculosis, quite apart from the attendant disadvantages to such patients.

Diagnosis occupies a good deal of the time and energy of the consultant tuberculosis officer, who assumes personal responsibility for this branch of the work, seeing every new patient during the course of the detailed investigations and taking skiagrams of nearly all chest, bone and joint cases. In 1930, 684 cases were specially referred to me by their medical attendants, representing 88 per cent. of the total number (775) of new cases, excluding contacts, which were examined. Most of these attended one of the five dispensaries, but 159 home visits were necessary, 143 of which I made. In 91·6 per cent. of these latter the patient's doctor was present at the time of the examination.

Accurate diagnosis has long ceased to be a mere matter of opinion and each case is thoroughly investigated. Apart from the customary clinical procedures, temperature and sputum records, etc., X-ray examinations are now almost invariable, and Lipiodol and Wassermann tests as indicated. Altogether 983 skiagrams were taken in 1930 at Eccles Dispensary. It is usually possible by a thorough utilisation of other methods of diagnosis to determine whether or no a patient is suffering from tuberculosis, but radiology serves as a useful check and tends to eliminate any tendency towards over-diagnosis. Practically all our chest, bone and joint cases have now been X-rayed, and there is good reason to believe that we are wasting little time, energy and money in treating non-tuberculous cases as tuberculous. Furthermore, radiology enables an accurate diagnosis to be made in non-tuberculous chest conditions. The use of X-rays after Lipiodol is a case in point.

The tuberculosis officer has thus unrivalled facilities for the study of diseases of the chest, etc., apart from his other duties. The dispensary has become a centre for the scientific diagnosis of diseases of the chest as well as of non-pulmonary conditions, and it is disappointing to hear from many quarters that even greater use would be made of the admitted facilities at dispensaries were it not for the public dread of the word "tuberculosis," which exists as the sole designation in connection therewith.

(b) *Help and encouragement for patients at home.*—One cannot speak too highly of the ability and devotion shown by the assistant tuberculosis officers and dispensary nurses, who are mainly concerned with this most important work. The tuberculosis officers regularly examine at the dispensaries or at home all patients at intervals varying from one to three months in active cases to longer intervals for quiescent patients. They also receive weekly reports from the dispensary nurses as to their findings in the homes. In this way the family is regarded as a unit, the social and economic circumstances receiving due consideration, both as regards recommendations for institutional treatment and the provision of special help to enable home treatment to be satisfactorily carried out.

The dispensary nurses, apart from their unremitting efforts towards the prevention and reduction of the risks of infection in the homes, spend much time in actual nursing, application of dressings, etc. In this way they assist the doctor in attendance on the patient.

(c) *Specialist medical treatment.*—Under this heading must be included the aspiration of abscesses, and the application of plasters, splints, etc. The artificial light centre at Eccles is an important illustration of this branch of the dispensary activities.

The growing utilisation of artificial pneumothorax in pulmonary institutions has rendered necessary the giving of refills at Eccles Dispensary to patients on their return home. Fourteen such cases were dealt with in 1930 under X-ray control.

In connection with the Little Lever health week last autumn a lantern lecture on tuberculosis was given by me and was well attended.

I was fortunate in being able to join the party of British tuberculosis physicians who visited Canada and the United States during August and September, and my thanks are due to the Sun Life Assurance

Company of Canada and the County Tuberculosis Committee for their financial assistance. Dr. D. A. Powell, of Wales, and I were asked to make a detailed study and report on " Local Tuberculosis Administration, and Dispensary Organisation." This report was published in *Tubercle,* March, 1931.

In conclusion, it is a pleasure to allude once again to the loyal and conscientious manner in which the various members of the staff have collaborated with me.

A CASE OF TUBERCULOSIS OF THE MAMMARY GLAND.

Tuberculosis of the mammary gland is a comparatively rare condition. Wakeley[1] states that only 212 cases have been recorded. He describes two forms (1) disseminated (2) confluent, in which a single chronic abscess cavity is formed. The commonest cause of infection is *via* the bloodstream secondary to pulmonary tuberculosis, but infection may occur as a result of direct contact following tuberculosis of rib or sternum. More rarely the source of infection is pleura or axillary lymphatic glands. The following case is interesting as illustrating the presence of a single chronic tuberculous abscess cavity in the breast tissue, following lupus of face with tuberculous cervical and axillary glands of many years' standing.

E.R., a married woman, of a coarse swarthy type, born in 1893, was referred to me at the Tuberculosis Dispensary, Leigh, by her doctor in June, 1917. She was well-nourished and had several scars (some scabbed over) on both sides of her neck and under her chin. There was slight discharge here and there, with some enlargement of the cervical and left axillary glands. Scraping was performed at the Manchester Royal Infirmary and she was discharged on the 26th July, 1917, the lesions being apparently healed. In January, 1918, she had several small glands down the left side of her neck with many scars and some scrofuloderma ; she was doing her housework. After September, 1918, she ceased attendance at the dispensary until January, 1920, when painful swollen glands in the left axilla and lupus of the right cheek were noted. Her condition improved following treatment at the Manchester and Salford Skin Hospital. When she next visited the dispensary in May, 1923, there was extensive lupus of the right side of face and neck together with a discharging sinus in the left axilla. She again attended the skin hospital regularly and in September, 1926, she had extensive scars from ear to ear with only a few active spots of lupus. She visited the Leigh Dispensary at intervals, and in January, 1931, she drew attention to her right breast, when a firm swelling was detected in the upper and outer quadrant adherent to the skin, but freely movable on the deeper structures. There were scars of old sinuses in both sides of neck and both axillae, also lupus of the right cheek. There was no evidence of pulmonary tuberculosis.

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(1) Clinical Journal, 1928. 57. 224.

She was admitted to the Manchester Royal Infirmary and the tumour with overlying skin and surrounding tissue was removed by Mr. A. H. Southam, F.R.C.S. The following particulars were kindly supplied to me by the Surgical Registrar (Mr. R. P. Osborne): Section of tumour at the time of the operation proved that it was an abscess. Subsequent pathological examination of the whole of this material resulted in the report: "Section shows the structure of tuberculosis with caseation and abscess formation." The tumour is thus a tuberculous abscess.

Comment. With some intermissions this patient was under frequent supervision at a tuberculosis dispensary for thirteen and a half years, first of all with tuberculous adenitis of neck and scrofuloderma, and subsequently with lupus of right cheek. The development of the tuberculosis of the mammary gland appears to have been a direct sequela of the foregoing conditions.

ARTIFICIAL LIGHT TREATMENT.

The artificial light centre at the Eccles Dispensary was established on the 1st December, 1927.

Dr. Jessel has contributed a comprehensive article on "Actinotheraphy at a Tuberculosis Dispensary," describing the work done at Eccles, and the following are the conclusions extracted from the article which was published in *The Lancet*, 30th May, 1931:

1. Artificial light treatment can be successfully given at tuberculosis dispensaries under the control of local authorities.

2. It is especially useful in cases of lupus and allied skin conditions, adenitis with and without softening, and other superficial conditions.

3. It is much less effective in the treatment of tuberculous disease of the larger joints and bones, which cases should be sent to special residential institutions.

4. In the treatment of lupus a combination of general light therapy with local treatment—*e.g.*, Kromayer lamp—is usually necessary, and the carbon arc bath is to be preferred to the mercury vapour lamp for general irradiation.

5. Prolonged exposure to weak carbons is preferable to brief exposure to strong-cored carbons. It is efficacious, safe, and particularly suitable for use by tuberculosis officers who have other duties to perform outside their dispensaries.

6. To obtain the best results, actinotherapy needs frequently to be combined with various forms of local treatment—*e.g.*, the use of suitable caustics in lupus, and the aspiration or incision of abscesses. Painstaking attention to detail on the part of the doctor and nurse, and the regular attendance of the patient, are essential for success.

The following Table 23 shows the results for patients treated during 1930:—

Eccles Centre.

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	44	13	—	—	—	5	26
Adenitis with abscess formation and skin involvement	55	38	—	—	—	7	10
Adenitis without softening	22	9	—	—	—	3	10
Bones, joints and spine	10	3	—	—	—	2	5
Abdomen	3	2	—	—	—	—	1
Other non-pulmonary conditions ...	3	1	—	—	—	1	1
TOTAL	137	66	—	—	—	18	53

* Includes: (1) any patient who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

PEEL HALL PULMONARY HOSPITAL, LITTLE HULTON.

Matron: Miss A. Jones.

The Hall, with about 17 acres of land attached thereto, was presented in 1914 to the Lancashire County Council by Mr. A. Wynne-Corrie, and an additional 20 acres of land, and later 8 acres, have been purchased. The adaptation of the premises as a pulmonary hospital for the treatment of advanced and chronic cases suffering from tuberculosis—delayed owing to the Great War—was completed in 1921.

The hospital, now accommodating 56 adult males, serves principally Dispensary Area No. 4 in taking advanced, observation and educational cases.

A motor ambulance is provided, and is available also for conveying patients to and from other hospitals.

Dr. Jessel reports as follows on the year's work at the hospital:—

By the time this report is published the hospital will have completed the first ten years of its existence. Although it is not yet possible to write fully of the activities of the hospital during its first decade, some indication of its work and progress can be given. The hospital was opened at a difficult period—when prices were exceedingly high. At that time there was generally a rigid line of demarcation between the so-called early cases and the advanced cases, with the result that institutions dealing with the latter were generally unpopular, and it was notoriously difficult to induce patients to enter them, or having entered to remain for any length of time. The position to-day is quite different. Only exceptionally do patients decline an offer of a bed at Peel Hall; they remain as long as is thought advisable after due consideration of their medical and social circumstances, and should a relapse occur after discharge they frequently express a desire to be re-admitted to the hospital. The question will naturally be asked—how has this changed attitude been brought about? To answer it is necessary to indicate briefly three periods in the evolution of the hospital:—

1. The earliest years, when, in common with similar contemporary institutions, the hospital was full of very acute and advanced cases, for whom little was possible except rest in bed or walking exercise, and amusements and amenities were relatively few.

2. A middle period, when special attention was paid to the mental and recreational sides of the patient's life, and useful and purposeful hobby-exercises were organised for all patients who were up and about, according to their tastes and physical capacity. This important aspect of the patient's treatment is still carefully fostered. Scope for hobby-exercises is presented in the extensive grounds and greenhouses, garage, stores and wood-shed, as well as in window-cleaning, painting, joinering, poultry-keeping, library, newspaper and gramophone stewardships, etc. A social club, officered and managed by the patients, is responsible for the social amenities, which include billiards, a large library, the usual indoor and outdoor games, wireless, Kodascope, etc. The result is a happy and contented atmosphere all round. Christmastime brings a specialised scheme of ward decorations by the patients and the publication of *Our Mag* containing their literary efforts.

3. The last three or four years' experience has demonstrated that even in a hospital containing a large proportion of acute and advanced cases with a sprinkling of earlier and observation cases, medical work of definite value to the patients, indirect as well as direct, can be done. With the extending use of special methods of diagnosis and treatment, radiology, Lipiodol, artificial pneumothorax, Sanocrysin, blood sedimentation, bismuth meals,

etc., have now their regular and definite place in the daily routine of the hospital, which has become a specialised hospital for the diagnosis and treatment of chest diseases (on the lines of the special chest hospitals in London), while at the same time providing sanatorium treatment on up-to-date lines, with useful hobby-exercises taking the place of the old-fashioned aimless walks.

It has to be remembered that there is a public health aspect in tuberculosis, and that the social and environmental circumstances of the patients must be carefully considered. This is easily done where, as in the present instance, the medical officer is also the tuberculosis officer of the area from which the great majority of the patients come. He sees them first as out-patients, then takes them into his beds and eventually looks after them on their return home. Each patient receives individual attention from every point of view, and even in cases where death is inevitable the relatives frequently prefer this to occur at the hospital.

The accompanying table with particulars of admissions, discharges, etc., for the last five years, gives data upon which many of the foregoing remarks have been based.

	1926	1927	1928	1929	1930
1. Admissions.					
(a) Definite cases	111	111	125	135	117
(b) Observation cases	4	2	3	8	8
2. Discharges.					
(a) Definite cases	106	77	69	92	87
(b) Observation cases	3	3	2	9	7
3. Deaths.					
(a) Definite cases	25	38	52	38	30
(b) Observation cases	—	—	—	—	—
4. Average length of stay of patients discharged.	days	days	days	days	days
(a) Definite cases	158	156	175	181	180
(b) Observation cases	46	35	39	41	32
5. Average length of stay of patients who died	105	137	131	100	123

Artificial pneumothorax.—Eight patients were carried over from 1929 and 27 new inductions were attempted in 1930. Of these latter, three were unsuccessful owing to dense adhesions, and five were discontinued after a few refills for similar reasons, leaving 19 who had a satisfactory collapse. Gas replacements were carried out on eight patients as follows :—

3 patients : 1929 inductions.
3 patients : 1930 inductions.
1 patient admitted with extensive pleural effusion.
1 patient admitted with empyema.

Peel Hall Pulmonary Hospital. Treatment Room.

The number of patients has steadily grown, and at the time of writing (May, 1931) 21 patients out of 55 are in various stages of artificial pneumothorax. As refills are necessary at intervals of one or more days at first up to about three weeks later and are done under X-ray control, it will be clear that this treatment involves a good deal of time and labour. The results so far have been most encouraging and have made a favourable impression upon the patients generally.

Artificial pneumothorax should not infrequently be supplemented by other specialised procedures, *e.g.*, gas replacements, intra-pleural injections and lavage with methylene blue, etc., injections of gomenol oil or paraffin (oleothorax). Sometimes surgical measures are advisable, *e.g.*, phrenic evulsion, division of adhesions and occasionally thoracoplasty.

The opening of a modern operating theatre in April, 1931 has already greatly facilitated our work, and the welcome appointment of Mr. Morriston Davies as consulting surgeon to the hospital marks the beginning of an important new chapter in its history.

Up to May, 1931, 5 patients have undergone the operation of phrenic evulsion.

Sanocrysin.—The treatment of pulmonary tuberculosis by Sanocrysin at Peel Hall has been continued in 1930, and a summary of my report will be found on page 17.

X-ray work.—578 skiagrams were taken and 48 screenings done. In 9 cases skiagrams of the abdomen were made after bismuth meals in suspected cases of tuberculous enteritis, and in 3 cases after Lipiodol injections in suspected cases of bronchiectasis.

Blood sedimentation.—This is now done on admission, prior to discharge, and at other times when thought advisable. It appears to be of definite value in prognosis. In general, low sedimentation rates have been found in cases with good prognosis or slight disease; high rates in advanced cases or acute cases with poor outlook. A fall in the rate after treatment has been found in cases considered clinically to have improved and a rise in cases deteriorating. We thus appear to have a useful arithmetical index to supplement our sense impressions, but it would be premature to say that blood sedimentation is an infallible guide. It is hoped to report more fully on this subject at a later date.

The introduction of special methods of diagnosis and treatment has had an excellent effect upon the morale of patients, but it is necessary to emphasise that a patient who is not receiving a special treatment is not, therefore, receiving no treatment. Graduated rest and exercise under good hygienic conditions is in itself essential treatment, to which other methods are supplementary.

It remains to add that the whole resident staff headed by the matron have as usual done everything possible to make the patients happy and comfortable.

My thanks are due to my assistants, Dr. H. J. Villiers and Dr. A. B. Jamieson, for their help in the wards and laboratory respectively.

Summary of Dispensary Work.

Number of tuberculous cases under supervision on 31st December, 1930 (Definitely tuberculous, 1654 ; doubtful, 0.)	1654

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of " *old* " *cases* and " *old* " *contacts.*
Patients' homes	192	1039
Leigh Chief Dispensary	219	1052
Eccles Branch Dispensary	160	1225
Farnworth Branch Dispensary	130	558
Pendlebury Branch Dispensary	56	480
Stretford Branch Dispensary	157	593
	722	3908

Attendances of patients at the Eccles Dispensary for artificial light treatment		5932
Care committee meetings attended by—		
(*a*) Tuberculosis officers		42
(*b*) Tuberculosis health visitors		59
Lectures or addresses given		4
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals		68
Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.)		36
Visits by dispensary nurses to patients' homes—		
Routine visits	8725	10346
Actual nursing	274	
Application of surgical dressings	816	
Adjustment of splints and surgical appliances	531	
Patients' dispensary attendances for attention by nurses—		
Application of surgical dressings	875	935
Adjustment of splints and surgical appliances	60	
Sanitary defects reported to the local medical officers of health		31
Sanitary defects which after notification were remedied		13
Disinfections carried out by local sanitary authorities		606
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment		684
Sputum examinations—		
Total number of specimens examined		1662
Number where tubercle bacilli were found		260
Number of specimens sent by medical practitioners		274
Number of these where tubercle bacilli were found		32

Care work—

Number of patients assisted by care committees and tuberculosis sections of civic guilds of help	143
Amount expended	£347/7/7
Number of patients assisted from County care fund	20
Amount expended	£34/18/0

Contacts—

Number of selected persons examined	139
Number of cases of tuberculosis found	8

X-ray work—

Skiagrams—pulmonary 866, non-pulmonary 117*	983
Screenings	30

* Spine 23, hip 35, knee 23, ankle and foot 14, shoulder 7, elbow 7, others 8.

XVI.—REPORT FOR DISPENSARY AREA No. 5.
(including Rufford Pulmonary Hospital).

Area (estimated population 371,131) embraces West Lancashire Rural, Great Crosby, Waterloo-with-Seaforth, Ince-in-Makerfield, Hindley, Ashton-in-Makerfield, Newton-in-Makerfield, Whiston Rural, Warrington Rural, and Widnes districts.

Consultant Tuberculosis Officer ... Dr. C. W. Laird.
(Dr. Laird is also visiting medical superintendent of the Rufford Pulmonary Hospital).
Assistant Tuberculosis Officers ... Dr. C. H. Lilley and
Dr. G. Barker Charnock.

Dr. Laird reports :—

There is little to be written in regard to the work in this area which has not been touched upon in previous years. The same routine has been followed in the examination of patients referred by private practitioners to the dispensary or seen in consultation with them at their homes. In most cases this investigation includes an X-ray picture ; the total number of skiagrams (956) for the year 1930 showed an increase of 177 over 1929.

So much has X-ray examination been appreciated and expected of late by practitioners that in many cases patients are referred for an opinion in whom grounds for suspecting tuberculosis appear to rest on a very slight foundation.

It may be thought that the freedom with which patients are sent to the tuberculosis officer may point to his popularity and to the value attached to his opinion, or may be construed as a measure of the spirit of co-operation in his area, but it is to be remembered that popularity can be too dearly purchased, and that the value of one's opinion is more justly estimated by those who seek it with discretion.

Artificial pneumothorax treatment has come to occupy a prominent place in the work of the chief dispensary at Seaforth, where it is carried out by way of maintenance of treatment which is usually inaugurated in an institution. The patients are given a local anæsthetic and refills are regulated under X-ray control. On the whole the results of this measure, continued over a number of years, are very satisfactory—a fact which is fairly generally admitted at home and abroad. Unfortunately the method is to a great extent selective and cannot be made to apply to more than a small proportion of cases.

Sputum examinations for all parts of the area are done at Seaforth ; 1,012 (219 being positive) examinations were made in 1930, against 971 the previous year.

Thanks to the loyal co-operation of every member of the staff the work of the area has been conducted with the utmost efficiency.

ARTIFICIAL LIGHT TREATMENT.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 5: St. Helens (16th January, 1928), and Wigan (31st May, 1929).

St. Helens Centre. During the year treatment was given on the same lines as in 1929, the main source of light being derived from two "Sunrae" carbon arc lamps each taking 30 amperes, and while white-flame carbons were employed during the earlier stages of treatment metal-cored carbons were substituted as the exposure to white-flame reached a total of 40 minutes or so. Exposures with these metal-cored carbons varied from 5 minutes to 12 minutes on each side, that is to say a total of 10 to 24 minutes' exposure, whereas treatment with white-flame carbons varied from 7½ to 20 minutes back and front, or a total of 15 to 40 minutes.

Reactions were practically unknown with both types, but were found occasionally with the metal-cored carbons, and it was with the latter that pigmentation was more apt to occur.

General irradiation by the carbon arc was supplemented in certain cases by additional local exposure to the same source of light; thus a particular patch of lupus might receive an additional 5 or 10 minutes over and above the general irradiation of the body.

The usual distance of the patient from the lamp was 3 feet, but as stronger effects were desired this was diminished to 2½ feet in some cases.

For the stimulation of sluggish nodules in lupus patches the Kromayer lamp was used, with pressure by quartz, on the affected spot, the minimum exposure being 3 minutes and the maximum 8.

Consideration of the figures relating to the patients treated will show that the total number of patients is diminished, presumably as cases ceased to attend owing to quiescence or for other reasons, and the other figures bear a proportionate relation to the diminished number of patients attending. This relationship is very similar to what was found during the preceding year.

On the whole the results of treatment were decidedly beneficial, the most marked benefit being found in cases of lupus and adenitis with softening, but good results were also obtained in adenitis without softening and in abdominal cases.

In one case which is reported worse after treatment the explanation is to be found in the fact that the patient developed epithelioma on an old lupus. She had been under treatment for very many years elsewhere and had had X-ray irradiation during the earlier years of her treatment. It is a matter of common knowledge that sooner or later such cases are apt to develop malignant trouble on the site exposed to the X-rays. She is now receiving radium treatment for the complication, this being given at the Liverpool Royal Infirmary.

The undoubted tonic effect of the treatment has been the subject of comment on the part of several patients, and apart from the patients' own experience the effect of it is clearly evident to the observer. One patient who had had less than a year's treatment for enlarged cervical glands of a most intractable kind declared that she felt herself " a new woman " since she began light treatment, and her glands had disappeared when treatment ceased ; this case is typical of many others.

Wigan Centre. The following notes have been compiled by Dr. G. B. Charnock who supervises the treatment at this centre :—

The general management of the light department has been identical with that detailed in the report of 1929.

The types of cases treated were as follow : Tuberculous adenitis, scrofuloderma, lupus, Bazin's disease and tuberculous leg ulcerations, tuberculous peritonitis, tuberculous dacryocystitis, and iridocyclitis.

There has been no alteration in the lamp equipment and carbons, nor in the exposures necessary. No ill effects have been observed as the result of the short intensive exposures. There have been no relapses during the year, and no evidence of extension of lesions of cases undergoing radiation.

The tonic effect of exposures to light shown by the increased mental and bodily vigour continues to be noticed. The reaction to radiation of cutaneous lesions takes the same course in each case, *viz.*, a general drying of the surface and rapid removal of sepsis, followed directly by a scaling, paling and flattening of nodules with a general levelling up of uneven surfaces. Doubtless the latter is due partly to the removal of pathological tissue and partly to the marked suppleness of the replacing scar tissue. At this stage the tuberculous lesions become discrete and the nodules of granulation tissue can be identified. The healing process now becomes slower, a quiescent period sets in and the disease becomes more difficult to eradicate. Very prolonged intensive treatment is then necessary and with this very slow improvement is manifest. The skin begins to grow hair. It is smooth and shaving can take place.

Lesions round the eye, *e.g.*, ectropion, become much improved and allow retraction of the lid with cure of such distressing conditions as photophobia, lachrymation and conjunctivitis. If, through economic stress, it is impossible for the patient to come for treatment regularly at this stage, prophylactic doses from time to time will keep the disease in check.

The chief difficulty in treatment occurs on the face where ancillary surgical measures cannot always be undertaken without pocking or other disfigurement, so that it is perhaps on the face that prolonged intensive treatment should be persevered with.

Where the disease is situated on other unexposed parts of the body various ancillary measures, medical and surgical, have been tried with encouraging results.

(a) Medical measures: Pure glycerol used as an inunction is massaged into all skin lesions night and morning for five minutes. Glycerol is antiseptic. It aids the penetration of the light, softens scar tissue and prevents cracks in the skin.

Phenol zinc ointment applied to the skin on lint destroys the tuberculous nodules to some extent and shows up the apple-jelly nodule. The application is used as a preliminary to the spiking process.

Zinc gelatine applied twice weekly to tuberculous ulcers of the legs and in Bazin's disease does what previous applications have never accomplished. The lesions of the legs themselves are not exposed to radiation.

(b) Surgical measures: (i) Spiking with liquor hydrargyri nitratis acidus B.P. under borocaine anæsthesia, using either the intracutaneous or subcutaneous routes according to the depth of the lesion; (ii) curetting of warty lesions under borocaine anæsthesia; (iii) total excision of lesions under local anæsthesia. In the last case light is given until the base of the ulcer is well scarred and the granulations less active. At this stage the base of the ulcer is well anæsthetised and the total lesion removed. The skin is carefully pared and dressed. A good cosmetic effect is obtained by dressing with firm sterile lint after spraying with iodine in a fine state of division. Should gauze be used, particularly if medicated, a rugged and sometimes papillomatous scar will develop. The lesion heals up rapidly on continued light therapy and a flat pale scar results. It has been noticed that some patients are boric acid sensitive, and as one cannot say without trial when a case of this kind will occur, one has abandoned the use of any boric medicated lint on these lesions.

Tuberculous glands: Where a tuberculous gland begins to suppurate it is first determined whether the suppuration is intracapsular or extracapsular. In the former case aspiration is performed with good results. Where, however, pus is extracapsular, be it beneath or external to the deep cervical fascia, a small incision necessary for its evacuation is made at the point indicated by the infiltrating lesion itself.

The fact that some patients appeared not to benefit from carbon arc radiation but reacted well to the mercury vapour source of light, led to an inquiry as to whether individual types of people were responsible for this.

For this purpose the patients were divided into two classes according as their diathesis was acid or alkaline. This was determined by very careful examination of the rest urine. The excretion of urine by the kidneys is, next to carbonic acid excretion of the lungs, the principal way of disposing of the acid accumulation of the body and nearly all acids other than carbonic acid are eliminated in this way. Acid is excreted in the urine in two forms, the one free, chiefly as phosphoric acid and capable of direct titration, the other concealed in combination with ammonia. The method used for the determination of the free and combined acid in the urine was that of Sorenson.

In the acid subject it has been determined that the ratio between the free and combined acid was as 1 : 1, and that as the diathesis became more alkaline the ratio increased to 1 : 2, 1 : 3 or even greater. Sufferers from tuberculosis are often alkaline in varying degree with their errors of assimilation, gastro-intestinal disturbances, fickle appetites, narrow chests, delicate bones, atonicity of muscles, tubular hearts, laxity of ligaments, sallowness, anæmia, nervous instability and lethargy. On the other hand the acid groups, like the horse which is very resistant to tuberculosis, are very active and muscular with bulbous hearts. Their metabolic processes are very good. They are acid producers and very resistant to tubercle, or at least if they do contract the disease, react very well to treatment.

It was found that of the patients attending the Wigan County Light Clinic 33⅓ per cent. had a free and combined acid ratio greater than 1 : 2 which figure had been adopted as a standard upon which to work. Of this percentage one-half had already found their way to the mercury vapour lamp where marked improvement had occurred, whilst the remainder were *in statu quo* under the carbon arc. The latter have now been transferred and show improvement.

The conclusion is for the present that, of the patients under treatment at this centre, over one-third will require the mercury vapour source of radiation, whilst the remainder will do well under the carbon arc. Research on these lines, however, will continue.

In addition to the foregoing, the values of the hydrogen ion content (pH) of the urines of all patients were determined by the delicate capillator method. It was found that the patients, whose free and combined acid ratio was 1 : 2 or greater, had values ranging from 5·6 to 6·0 and came within the bromo cresol purple indicator range.

The following Table 24 shows the results for patients treated at these centres during 1930 :—

(*a*) *St. Helens Centre.*

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	44	6	1	—	1	6	30
Adenitis with abscess formation and skin involvement	14	8	1	—	—	2	3
Adenitis without softening	23	7	2	—	—	5	9
Bones, joints and spine	2	—	—	—	—	2	—
Abdomen	8	4	—	—	—	3	1
Other non-pulmonary conditions ...	1	—	—	—	—	—	1
TOTAL	92	25	4	—	1	18	44

(*b*) *Wigan Centre.*

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	28	2	2	—	—	—	24
Adenitis with abscess formation and skin involvement	5	2	—	—	—	—	3
Adenitis without softening	12	2	—	—	—	2	8
Bones, joints and spine	2	—	1	—	—	1	—
Abdomen	3	2	—	—	—	—	1
Other non-pulmonary conditions ...	3	2	—	—	—	—	1
TOTAL	53	10	3	—	—	3	37

* Includes : (1) any patient who did not receive two months' treatment ; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue) ; and (3) patients transferred to sanatoria or hospitals.

RUFFORD PULMONARY HOSPITAL, NEAR ORMSKIRK.

Matron : Miss E. Moseley.

The County Council acquired, on the 18th October, 1920, Rufford New Hall, situated on the west side of the main road from Preston to Ormskirk, together with 128 acres of land adjoining the Hall. Under pressure from the Ministry of Health, a scheme was prepared for using the Hall and land for discharged sailors and soldiers, which included training the patients in several occupations. Some additional land was also obtained with a view to training in agricultural work, but all this, however, was abandoned in 1921 by order of the Ministry of

Health, owing to financial stringency. The premises were first used as a pulmonary hospital on the 7th April, 1926, providing accommodation for 52 female patients.

The hospital serves as far as possible the districts in West Lancashire, so that relatives and friends will have reasonable facilities for visiting.

A motor ambulance has been provided, available for the hospital and also for conveying County patients to other hospitals.

Dr. Laird reports as follows on matters relating to the treatment of patients and the administration of the hospital :—

During 1930, 138 patients were admitted to the hospital, 120 were discharged, and 22 died.

In 18 cases artificial pneumothorax was induced, and 205 refills were given. In all, some 23 patients were undergoing this form of treatment during the year. The great majority of these derived much benefit, and in many of them the disease has become more or less quiescent. Three, however, did not respond to treatment and subsequently died. All, with one exception, were positive cases, and in one simultaneous bilateral pneumothorax has been maintained for more than two years, the patient being now comparatively well and capable of considerable exertion. Her sputum no longer contains tubercle bacilli. Two patients have since had phrenic evulsion performed. As many as 25 per cent. of the positive cases in hospital have been at one and the same time in receipt of artificial pneumothorax treatment—most of them in a moderately advanced state of the disease, and not a few with at least one lung extensively involved. The results seen from this form of treatment here are most encouraging and much more striking than those obtained by ordinary sanatorium routine alone. In some instances patients attend periodically at the hospital after discharge in order to continue the treatment by means of refills. In other cases refills are continued at the various dispensaries near their homes.

Other special measures undertaken in the hospital include the aspiration of abscesses, the drainage and replacement of pleural effusions, diagnostic injections of Lipiodol, and the extraction of carious teeth.

In the course of the year X-ray work consisted of 579 screenings and 225 skiagrams. Of these 128 screenings and 50 skiagrams were of patients from outside the hospital.

The total number of sputum examinations was 231, of which 79 per cent. were positive and 21 per cent. negative.

Occasional use was made of the Hanovia mercury vapour lamp for ultra-violet ray therapy during the winter months in the treatment of non-pulmonary conditions.

Members of the nursing staff have attended a course of lectures by me on tuberculosis, anatomy, and physiology in preparation for an examination under the Tuberculosis Association, and have received from the matron instruction in nursing, sanitation, and general hygiene.

A new balcony is being constructed as an extension of the existing one, which will enable many more of the positive cases in the wards upstairs to come out into the open, and in some cases to sleep outside. This should prove to many a veritable boon.

Grateful acknowledgment is made of gifts of books, etc., from the Red Cross Society and private individuals, for the patients' use. The gift of a number of gramophone records was also greatly appreciated.

Thanks are due to the Tuberculosis Committee of the County Council for the continuance of the usual grants for extra fare at Christmas, for additions to the staff library and patients' library, for the provision of papers and periodicals, and for consideration given to matters of renovation and repair, as well as everything making for improvement of existing conditions and the raising of general efficiency.

To the matron, whose valuable services I shall shortly lose on her promotion to the Wrightington Hospital, and to the nursing staff I have to express, as in former years, my recognition of their own particular work.

SUMMARY OF DISPENSARY WORK.

Number of tuberculous cases under supervision on 31st December, 1930 (Definitely tuberculous, 1975 ; doubtful, 9.) 1984

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of "*old*" *cases* and "*old*" *contacts*.
Patients' homes	303	931
Seaforth Chief Dispensary	245	1139
St. Helens Branch Dispensary	135	654
Widnes Branch Dispensary	180	1217
Wigan Branch Dispensary	265	1629
	825	4639

Attendances of patients at dispensaries for artificial light treatment—

St. Helens Dispensary	4429	6592
Wigan Dispensary	2163	

Care committee meetings attended by—		
(*a*) Tuberculosis officers		20
(*b*) Tuberculosis health visitors		58
Lectures or addresses given		1
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals		63
Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.)		24
Visits by dispensary nurses to patients' homes—		
Routine visits	6815	7685
Actual nursing	202	
Application of surgical dressings	328	
Adjustment of splints and surgical appliances	340	
Patients' dispensary attendances for attention by nurses—		
Application of surgical dressings	317	382
Adjustment of splints and surgical appliances	65	
Sanitary defects reported to the local medical officers of health		119
Sanitary defects which after notification were remedied		75
Disinfections carried out by local sanitary authorities		628
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment		881

XVII.—REPORT FOR FURNESS DISPENSARY SUB-AREA.

Area (estimated population, 38,301) embraces Dalton-in-Furness, Grange-over-Sands, Ulverston, and Ulverston Rural districts.

Consultant Tuberculosis Officer (1930)...Dr. E. H. Allon Pask.
(Dr. Pask is also medical superintendent of the High Carley and Oubas House Sanatoria).

Dr. Pask sends the following report :—

The dispensary organisation continues to receive the full co-operation of the practitioners of the district, as is shown by the number of cases sent to me for an opinion before notification. Of the notifications received during the year 85 per cent. were referred to me for an opinion before being notified by the general practitioners.

During the year 146 new cases were examined ; 56 were definitely diagnosed on the first examination as tuberculous, 60 as non-tuberculous, and 30 as doubtful.

Artificial pneumothorax refills for this area are done at High Carley Sanatorium owing to the fact that the X-ray apparatus is located there, and it is essential that all the refills should be done under X-ray control. For dispensary cases 190 screen examinations were made and 275 skiagrams taken.

Sputum examinations numbered 133, 22 being positive and 111 negative.

Lectures on tuberculosis have been given by me during the year to various organisations in the district.

During August and September I was privileged to undertake a six weeks' tour of Canada and the United States under the auspices of the Joint Tuberculosis Council. This was made possible through the generosity of the Sun Life Assurance Company of Canada and a grant kindly made by the County Tuberculosis Committee. The tour proved to be most enjoyable and valuable ; many institutions were visited in both countries and opportunities were afforded of comparing methods of treatment with those used in England. Numerous conferences were held which proved of mutual benefit. The whole tour was an experience which will not be readily forgotten.

Artificial Light Treatment.

An artificial light centre was established at the Ulverston Dispensary on the 5th June, 1928.

The type of case treated was much the same as in the previous year, and the best results were obtained in gland cases with skin involvement and abscess formation. As regards the exposure given it has not been necessary to increase beyond a maximum of half an hour, and the results obtained are, I think, just as satisfactory as with longer exposures. The lamp equipment is the same as in previous years. The use of grade C carbons has been discontinued owing to the fact that the erythema produced is sometimes considerable, and, in my opinion, it is impossible with dispensary cases to carry out the supervision necessary when these carbons are used.

A trial has been given to a few selected cases suffering from pulmonary tuberculosis, and a special report of the results is included in the chapter on artificial light treatment (see page 34).

The following Table 25 shows the results for patients treated at this centre during 1930 :—

Ulverston Centre.

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	4	—	—	—	—	1	3
Adenitis with abscess formation and skin involvement	10	5	—	—	—	—	5
Adenitis without softening	7	2	—	—	—	2	3
Bones, joints and spine	4	1	—	—	—	1	2
Abdomen	1	—	—	—	—	—	1
Pulmonary tuberculosis :— Sputum positive	6	—	—	—	1	1	4
TOTAL	32	8	—	—	1	5	18

* Includes: (1) any patient who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

SUMMARY OF DISPENSARY WORK.

Number of tuberculous cases under supervision on 31st December, 1930 (Definitely tuberculous, 270 ; doubtful, 1.) 271

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of " *old* " *cases* and " *old* " *contacts.*
Patients' homes	51	62
Ulverston Branch Dispensary	95	683

Attendances of patients at the Ulverston Dispensary for artificial light treatment 1784

Lectures or addresses given 3

Visits by tuberculosis officer to sanatoria, and pulmonary, special, and public assistance hospitals... 10

Visits by dispensary nurse to patients' homes—

Routine visits	1904	2027
Actual nursing	45	
Application of surgical dressings	57	
Adjustment of splints and surgical appliances	21	

Sanitary defects reported to local medical officers of health	2
Sanitary defects which after notification were remedied	2
Disinfections carried out by local sanitary authorities	57
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment	113

XVIII.—REPORT FOR FYLDE DISPENSARY SUB-AREA.

Area (estimated population, 62,850) embraces Fleetwood, Thornton Cleveleys, Fylde Rural, Garstang Rural (part), and Kirkham districts.

Consultant Tuberculosis Officer (1930) ... Dr. G. LEGGAT.
(Dr. Leggat is also medical superintendent of the Elswick Sanatorium).

Dr. Leggat reports :—

As in the preceding two years, 1930 has been marked by increasing co-operation between the general practitioners of the area and the dispensary organisation. The number of new cases taken on the dispensary register was 110, as against 87 in the year 1929. More than 80 per cent. of this number were referred by doctors prior to notification.

During the year 291 X-ray examinations of dispensary cases were carried out at the Elswick Sanatorium, and 170 sputum tests made, of which 31 were found to be positive.

The work of the area has continued on similar lines to previous years.

In August and September I was fortunately able to undertake a tour of the tuberculosis institutions in Canada and the United States which was arranged by the Joint Tuberculosis Council of England and Wales. The Sun Life Assurance Company of Canada and the Lancashire County Council contributed towards the cost. The tour gave me an opportunity of comparing, particularly for non-pulmonary tuberculosis, methods of treatment there with our methods. I regard the experience as being most valuable.

Artificial Light Treatment.

An artificial light centre was established in the Fylde Sub-Area at the Fleetwood Dispensary on the 25th June, 1928.

Artificial light treatment has been carried out twice weekly throughout the year and has generally proved both effective and popular with the patients, the number of irregular attenders for this form of treatment being relatively very small indeed. The results obtained have been quite satisfactory.

The following Table 26 shows the results for patients treated at this centre during 1930:—

Fleetwood Centre.

Form of tuberculosis or part of body affected.	No. of cases treated during 1930.	Condition of patients whose treatment concluded in 1930.				Ceased treatment for other reasons. *	Still under treatment at end of 1930.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	11	—	3	—	—	—	8
Adenitis with abscess formation and skin involvement	18	7	—	—	—	—	11
Adenitis without softening	8	3	1	—	—	2	2
Bones, joints and spine	3	—	—	—	—	2	1
Abdomen	3	—	—	—	—	—	3
Other non-pulmonary conditions ...	2	1	—	—	—	1	—
Pulmonary tuberculosis:—							
Sputum positive	1	—	—	1	—	—	—
Sputum negative	1	—	—	—	—	—	1
Bronchial glands	1	—	1	—	—	—	—
Pulmonary and non-pulmonary combined:—							
†T.B. plus and bones	1	—	—	—	—	—	1
T.B. plus and genito-urinary ...	1	—	—	—	—	—	1
Total	50	11	5	1	—	5	28

*Includes: (1) any patient who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

† Local treatment only for non-pulmonary condition.

Summary of Dispensary Work.

Number of tuberculous cases under supervision on 31st December, 1930 (Definitely tuberculous, 402; doubtful, 5.) 407

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of "*old*" *cases* and "*old*" *contacts*.
Patients' homes	53	189
Fleetwood Branch Dispensary	145	668

Attendances of patients at the Fleetwood Dispensary for artificial light treatment 2164

Visits by tuberculosis officer to sanatoria, and pulmonary, special, and public assistance hospitals 9

Special visits by tuberculosis officer (*i.e.*, interviews with medical officers of health, general hospital officials, etc.)		2
Visits by dispensary nurse to patients' homes—		
Routine visits	1592	1758
Actual nursing	4	
Application of surgical dressings	119	
Adjustment of splints and surgical appliances	43	
Patients' dispensary attendances for attention by nurse—		
Application of surgical dressings		75
Sanitary defects reported to local medical officers of health		10
Sanitary defects which after notification were remedied		4
Disinfections carried out by local sanitary authorities		58
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment		151

XIX.—CARE WORK.

The County care scheme was fully reviewed in the report for 1928, and as there has not been any further development, it is not proposed to recapitulate.

TABLE 27.—*Work done by Voluntary Care Committees.*

Name of Committee.	Estimated Population Served 1930.	Number of Individual Patients Assisted during 1930.	Expenditure during 1930.		
			£	s.	d.
Ashton-under-Lyne and District... ...	69,205	51	194	13	10
Bacup and Rawtenstall	49,570	10	10	15	7
Chorley and District	73,685	42	277	19	11
Earlestown, Newton and District ...	22,583	30	72	9	10
Eccles Civic Guild of Help	44,880	10	12	16	4
Egerton, Eagley, Dunscar and District...	5,759	1	1	8	0
Farnworth and District	69,509	32	113	2	0
Golborne	7,424	11	46	11	2
Horwich	16,140	26	183	4	5
Huyton-with-Roby District	5,285	3	7	4	1
Lancaster and District	85,001	15	107	2	3
Leigh and District...	89,274	59	106	9	10
Prescot and District	20,950	12	92	12	8
Prestwich	22,930	2	19	7	6
*Radcliffe, Whitefield and District Relief Fund	36,518	17	102	14	3
Stretford Guild of Help	54,850	29	80	10	0
Westhoughton	16,650	13	34	9	5
Widnes	40,930	33	52	0	0
Wigan County District	112,789	67	93	18	8
TOTAL	843,932	463	1609	9	9

* Relates to year ended 31st March, 1931.

The County Council has continued to make a grant of 33⅓ per cent. of the committees' expenditure on actual assistance to patients.

The following visits of voluntary care committees to County sanatoria and hospitals have taken place :—

Horwich Care Committee	Elswick Sanatorium	30th Aug., 1930.
Do.	Rufford Pulmonary Hospital	15th Aug., 1931.
Ashton-under-Lyne and District Care Committee	Rufford Pulmonary Hospital	30th June, 1931.
Chorley and District Care Committee	Elswick Sanatorium	22nd Aug., 1931.
Prescot and District Care Committee	Rufford Pulmonary Hospital	5th Oct., 1931.

The County Tuberculosis Committee encourage these visits as they enable the members of the care committees to see at first hand the institutional side of the scheme.

The voluntary care committees only cover a little less than half the County, and there is left a balance of nearly 1,000,000 persons to be dealt with by other means, pending the formation of new voluntary committees. In the areas without care committees the County Council have charged the tuberculosis dispensary staff with the duty of carrying out the relief work. During 1930, assistance in kind was afforded through the dispensary staff to 171 individual patients, the amount expended being £499 5s. 0d.

With the transfer of the Poor Law functions to the County Council, arrangements have been made to continue co-operation with the Public Assistance Committee and their Guardians Committees so as to prevent overlapping in rendering assistance in necessitous or destitute cases.

ECONOMIC CONDITIONS OF PATIENTS.

The need of the County care organisation and the arrangements for close co-operation with the public assistance department is particularly necessary at the present time when the industrial conditions are unfavourable.

Dr. G. Jessel, the consultant tuberculosis officer for dispensary area No. 4, had a survey made in his area during the winter months on the economic conditions of the patients under dispensary supervision. The survey formed the subject of an article entitled " Pulmonary tuberculosis from the industrial standpoint in a Lancashire county area " which appeared in *Tubercle*, August 1931.

The following are Dr. Jessel's conclusions, which may be regarded as embracing maximum figures occurring at a period of intense industrial depression :—

1. Of 877 pulmonary adults (males 517, females 360) in a Lancashire county dispensary area 216, or 41·7 per cent., of the males and 61, or 16·9 per cent., of the females were working at a remunerative occupation at or about the end of 1930. A further 91, or roughly 25 per cent., of the females were doing their housework as an occupation, so that a total of 42 per cent. of them were working—a figure practically the same as for the males.

2. Of those working at a remunerative occupation, 54 of 216 males and 24 of 61 females had changed their occupations.

3. There were 180 males (34·8 per cent.) and 133 females (36·9 per cent.) totally unfit for any kind of work.

4. This leaves 23·4 per cent. of the males and 20·8 per cent. of the females (22·3 per cent. for both sexes taken together) who were fit for some kind of work and were unemployed.

XX.—COUNTY SANATORIA AND HOSPITALS.

(1) HIGH CARLEY SANATORIUM, NEAR ULVERSTON.

Medical Superintendent (1930) ... Dr. E. H. ALLON PASK.

(Dr. Pask is also visiting medical superintendent of Oubas House Children's Sanatorium, Ulverston, and consultant tuberculosis officer for the Furness Dispensary Sub-Area—*i.e.*, the area around the sanatorium—containing a population of 38,301).

Assistant Medical Superintendent: Dr. J. L. ARMOUR, (and from 26th Nov., 1930, Dr. J. E. WALLACE, temporarily).

Matron: Miss E. WOOSEY.

(The matron is also responsible for the Oubas House Children's Sanatorium, Ulverston).

High Carley Sanatorium is situated about three miles west of Ulverston, to the south of the main road to Barrow-in-Furness. The buildings stand in about 23 acres of ground, and accommodation is provided for 112 patients (62 males and 50 females).

The medical superintendent and the assistant are accommodated on the estate; and seven houses are provided in the vicinity of the sanatorium for the male employees.

Since 1929 electricity has been obtained from the public supply in replacement of the sanatorium plant.

During the year 168 County patients received some form of dental treatment from the visiting dental surgeon (Mr. A. Miller).

Dr. Pask reports as follows on matters relating to the treatment of the patients and the administration of the sanatorium:—

In addition to the ordinary routine sanatorium treatment, artificial pneumothorax, Sanocrysin, and oleothorax are employed.

Artificial pneumothorax. This method of treatment is now being used in an increasing number of cases. During the past year it has been attempted on 48 patients; in 35 a successful collapse was obtained, but in the remaining 13 it was unsuccessful owing to the obliteration of the pleural cavity by adhesions. Artificial pneumothorax is used as a routine in all unilateral cases in which there is evidence of cavity formation, and the patient commences treatment as soon as convenient after admission. Where a small unilateral lesion exists without cavity formation, the induction is not considered unless the response to a reasonable period of ordinary sanatorium treatment is unsatisfactory. Theoretically, immediate artificial pneumothorax would be ideal for every unilateral case, but owing to the liability to effusions the patient should not be hurried into accepting artificial pneumothorax until sanatorium treatment has been given a fair chance. This liability to effusions is a definite factor to be reckoned with, as, of the 35 cases in which a successful collapse was obtained, 18, or 51 per cent., developed fluid, and in seven of these a gas replacement was necessary. I do not consider the mere presence of fluid *per se* to be an indication for a gas replacement operation, and the fluid is allowed to remain as the compressing agent ; it is only when the fluid is causing definite symptoms that it is removed.

Artificial pneumothorax treatment has been used in quite a number of bi-lateral cases in conjunction with Sanocrysin, the latter being used to clear up the trouble in the " better " side. Bi-lateral artificial pneumothorax was tried on one case with a certain amount of temporary improvement.

Of the cases in which artificial pneumothorax was commenced whilst in the sanatorium, eleven were discharged during the past year ; eight of these had a positive sputum on commencing the treatment, but on discharge the sputum had become negative in four cases, giving a bacillary loss of 50 per cent. At the end of the year 24 patients were continuing artificial pneumothorax treatment.

The condition as in April, 1931, of 22 patients who during 1925 to 1929 commenced artificial pneumothorax treatment and who were reported upon last year, is seen in the following Table 28 :—

Period since induction.	Total number of cases.	Number alive.	Number dead.	Percentage of cases alive.
				%
6 years.	5	2	3	40·0
5 years.	3	2	1	66·6
4 years.	4	3	1	75·0
3 years.	3	2	1	66·6
2 years.	7	5	2	71·4
Total	22	14	8	63·6

Oleothorax (olive oil with 5 per cent. gomenol) has been continued in a few selected cases with moderate results.

Solganol. This is a preparation described by the makers (Messrs. Schering, Ltd.,) as an organic gold preparation, but no information is given as to its composition. It is a yellowish-brown powder and is administered intravenously, the dosage being much the same as for Sanocrysin, than which it is claimed to be less toxic. It has been tried on four cases at High Carley and did not cause any reaction beyond, in one case, a rise of temperature on the day following the injection. There did not appear to be any beneficial results from the treatment and it was discontinued.

Sanocrysin. Sanocrysin has been continued on suitable patients, and a summary of the results of the treatment are embodied in a special report on page 17.

Occupational therapy. The special forms of occupational therapy practised are joinery and carpentry, wattle hurdle making, leather work, shoe repairing, poultry keeping, cane chair repairing, and gardening. As this is a form of treatment, no serious attempt is made to show a profit on the various undertakings, but the poultry farm more than pays its way, a profit of £30 being made on the year's working. The rest chairs are kept in constant repair and are the same as were obtained when the institution was opened in 1916. This is a useful work as, but for the repair department, these chairs would have had to be renewed some time ago.

X-ray department. A new screening stand, which enables skiagrams to be taken at a distance of 4 ft. 6 ins., was installed at the end of last year. I find it a great improvement on the old screening stand, where the distance was limited to 2 ft. 8 ins., for the rays are now parallel allowing less distortion of the skiagram.

The following are the numbers of screen examinations made and skiagrams taken of the sanatorium patients (exclusive of those done in connection with the Furness Dispensary Sub-Area) compared with the previous year :—

1929 : Skiagrams 302 ; screen examinations 369.
1930 : Skiagrams 646 ; screen examinations 1,163.

These figures show an enormous increase of work done in this department. A skiagram is taken of every case on admission and on discharge as a matter of routine, in order to have a permanent record of the progress of the lung condition. In addition, patients who are on any special form of treatment, such as artificial pneumothorax or Sanocrysin, are X-rayed and screened at more frequent intervals. The screen examinations were more than three times as many as in the previous year, almost entirely due to the increase in artificial pneumothorax work.

Sedimentation tests. The sedimentation test, which, expressed briefly, consists in measuring the rate of fall of the red blood cells, has been employed in a considerable number of cases, especially those having Sanocrysin treatment. It affords useful information as to the severity of the infection, and is a reliable index of the response to treatment. A simplified technique has recently been adopted and the test is now being done as a routine on every case when admitted and discharged.

Sputum examinations. The sputum of patients is examined at monthly intervals, and during the year 1,151 examinations were made, of which 622 were positive. There were 102 patients admitted to the institution with positive sputum, and of these 26 were discharged with negative sputum, a percentage of 25·4. A careful record of bacillary loss has been kept for a number of years, and the average for the last six years has been 19·5 per cent. The satisfactory increase of the last two years is, I think, due to the new forms of treatment which have been instituted, and also to the fact that patients remain in the sanatorium for longer periods than formerly.

The sputum is examined by the ordinary Ziehl-Nielsen stain. I have tried various concentration methods but have come to the conclusion that the time occupied by these is better spent in a careful search of a slide prepared in the former way.

Doubtful cases and the use of Lipiodol. Doubtful cases are admitted for the purpose of diagnosis, and during 1930, 32 such cases entered the sanatorium. Of these, 8 were found to be suffering from pulmonary tuberculosis and one from tuberculous meningitis.

Lipiodol, which is a solution of iodine in poppy-seed oil, is very useful in the diagnosis of obscure cases. It is injected through the crico-thyroid membrane, is opaque to the X-rays and gives a clear picture of the conformation of the bronchial tree. As illustrations of its use, two cases may be quoted :—

(1) A girl aged 22 years whose only symptoms were slight cough, but no sputum, and a history of a smart hæmoptysis. These symptoms suggested pulmonary tuberculosis especially in view of the girl's age. After the injection of Lipiodol the presence of several dilated bronchi was revealed at the right base, this being the seat of the hæmorrhage. A case of so-called "dry bronchiectasis."

(2) A case in which there were obscure physical signs at the left base, with cough, sputum (which was negative), and loss of weight. Lipiodol revealed obstruction of the main descending bronchus on the left side due to a bronchial "carcinoma."

Without the use of Lipiodol an accurate diagnosis would have been exceedingly difficult in these two cases.

Patients' weights. Patients are weighed at weekly intervals, and the following figures show the average gain in weight of those who completed two or more months' treatment :—

103 male patients, average gain in weight 9·56 lbs.
57 female patients, average gain in weight 11·29 lbs.

The figures are unusual in that one would expect the gain in weight to be greater in men than in women, whereas the reverse was the case.

Social activities. Amusement, both indoor and outdoor, has been provided for the patients. During the winter months a weekly cinema entertainment has been given and the enjoyment of the " pictures " has been greatly enhanced by the playing during the performance of selections by Mr. Clayton's dance band, which has paid frequent visits. Concert parties in visiting the sanatorium on many occasions have also contributed to the entertainment of the patients, and our best thanks are due to them for generously giving their services and also for providing their own transport. Whist drives have been held at frequent intervals and are always a popular form of amusement. Billiards, bowls, croquet, and " putting " also help to provide recreation. Thanks to the County Tuberculosis Committee there is available for the patients an excellent library to which gifts of books are frequently made by the British Red Cross Society. A good supply of periodicals and current literature is provided by friends. These facilities for amusement and recreation help to make a patient's stay at the sanatorium less irksome.

Nurses' examinations. During the year Nurses E. Cumming and E. Gillibrand obtained certificates for having completed a two years' course of training and passed satisfactorily an examination in nursing, elementary anatomy, and physiology. It is hoped to enter probationer nurses next year for the examination to be held under the auspices of the Tuberculosis Association.

Visit of members of the County Council. In September the County Councillors of the Lonsdale Hundred, together with the members of the County Tuberculosis Committee, visited the sanatorium. The work of the institution was explained by the Central Tuberculosis Officer and a demonstration of X-ray skiagrams illustrating methods of diagnosis and treatment was given by me. Afterwards a tour was made of the wards, cubicles, workshops, and kitchens.

I would like to acknowledge the valuable help given to me by Dr. Armour, my assistant medical superintendent, and by Dr. Wallace, who at present holds that post in the absence of Dr. Armour who is temporarily acting as an assistant tuberculosis officer.

The following Table 29 shows the condition of patients discharged during the year 1930 :—

Classification on admission to the sanatorium.	Condition at time of discharge.	Duration of residential treatment in the sanatorium.				Total.	
		Under 3 months.	3—6 months.	6—12 months.	More than 12 months.	No.	%
T.B. Minus.	Quiescent	11	13	5	—	29	56·9
	Improved	8	6	—	1	15	29·4
	No material improvement ...	3	1	—	—	4	7·8
	Died in sanatorium	—	3	—	—	3	5·9
T.B. Plus 1.	Quiescent	1	4	3	—	8	22·2
	Improved	4	7	5	4	20	55·5
	No material improvement ...	2	3	2	1	8	22·2
	Died in sanatorium	—	—	—	—	—	—
T.B. Plus 2.	Quiescent	2	3	4	1	10	12·9
	Improved	16	13	11	7	47	61·0
	No material improvement ...	9	2	3	—	14	18·2
	Died in sanatorium	4	1	1	—	6	7·8
T.B. Plus 3.	Quiescent	—	—	—	—	—	—
	Improved	—	3	1	—	4	36·3
	No material improvement ...	3	1	—	—	4	36·3
	Died in sanatorium	2	—	1	—	3	27·3
		Under 1 week.	1—2 weeks.	2—4 weeks.	More than 4 weeks.		
Observation for purpose of diagnosis.	Tuberculous	1	2	3	3	9	28·1
	Non-tuberculous	—	—	6	15	21	65·6
	Doubtful	—	1	—	—	1	3·1
	Died*	1	—	—	—	1	3·1
					Total ...	207	

*Post-mortem revealed disease of aortic and mitral valves.

(2) OUBAS HOUSE CHILDREN'S SANATORIUM, ULVERSTON.

The medical superintendent, assistant medical superintendent, and matron of the High Carley Sanatorium are also responsible for the work at Oubas House. The sister-in-charge is Miss D. Pope, and the certificated school teacher is Miss A. Gibson.

The house, now the property of the County Council, stands in its own grounds (about one acre in extent), and accommodates 21 girls. A portion of an army hut has been adapted for use as a class-room. Educational instruction is given to the children in conformity with the requirements of the Board of Education.

Dr. Pask reports as follows :—

The accommodation at Oubas House provides adequately for the type of case for which it was intended, namely, girls up to 13 years of age suffering from pulmonary tuberculosis. There is seldom a waiting list for this institution as a careful selection of cases is made by the consultant tuberculosis officers and the so-called pre-tubercular child excluded. The beds for the most part are filled with definite cases, and during the year there were only four cases sent for observation. Of these, one was diagnosed as suffering from pulmonary tuberculosis, the remaining three being cases in which the diagnosis was not confirmed.

The admissions during the year numbered 22, of which three had positive sputum. Twenty patients (including four cases sent for observation) were discharged, and one died. The condition on discharge of the 16 definite cases was as follows :—Quiescent 10, improved 3, stationary 2, worse 1.

Speaking generally, the type of tuberculosis seen in these children is essentially the same as that seen in adult cases ; this applies more especially to those who have a positive sputum.

During the year 57 specimens of sputum were examined—25 positive and 32 negative.

Our best thanks are due to numerous friends who have been kind enough to present toys and articles for the amusement of the children and also for the large quantity of good things provided at Christmastide, all of which were thoroughly appreciated.

County Councillor E. G. Woolgar visited the institution at quarterly intervals in 1930 for the purpose of inspection and signing the school register, a duty which is now being performed by County Councillor B. P. Allen.

Lady Fell, who has kindly acted as lady visitor for a number of years, continues to pay frequent visits which are looked forward to both by patients and staff.

My thanks are due to Miss D. Pope, the sister-in-charge, and Miss A. Gibson, the teacher, for their very excellent work, and to whose efforts are due the harmonious working of the institution.

(3) ELSWICK SANATORIUM, NEAR KIRKHAM.

Medical Superintendent (1930) ... DR. GEORGE LEGGAT.

(Dr. Leggat is also consultant tuberculosis officer for the Fylde Dispensary Sub-Area—*i.e.*, the area around the sanatorium—containing a population of 62,850).

Matron : MISS I. G. BARCLAY.

This sanatorium is situated on the east side of Elswick village, and is about six miles from Kirkham station. The buildings and about 11 acres of land belong to the Fylde, Preston, and Garstang Joint Smallpox Hospital Board, and are held on lease by the County Council until 1955. The Council are under an obligation to vacate the premises in case of a severe epidemic of smallpox. The accommodation provided is: Pulmonary cases, 17 males and 29 females; non-pulmonary cases, 14 males and 8 females; total 68. An X-ray apparatus is provided in a separate building erected in 1925.

During the year 108 County patients received some form of dental treatment from the visiting dental surgeon (Mr. J. J. Ward).

Dr. Leggat reports as follows on matters relating to the treatment of patients and the administration of the sanatorium :—

Throughout the year there has been a steady advance in the adoption of surgical methods in the treatment of pulmonary tuberculosis. The sanatorium has been chosen as a centre for carrying out specialised treatment, which has included lung splinting, Sanocrysin, artificial pneumothorax, gas replacement, oleothorax, and phrenic evulsion.

Mr. H. Morriston Davies, M.D., F.R.C.S., has been appointed consulting surgeon to the sanatorium, and in this we are most fortunate, as in addition to carrying out the major surgical work, his wide experience and knowledge have been an invaluable help in advising us as to the treatment to adopt in difficult cases.

The routine at Elswick is as follows: On admission the patient is put to bed. A complete examination is made, and in all cases a blood sedimentation test is now done. The clinical, X-ray, and bacteriological findings are then summarised and the best line of treatment to be adopted for the particular patient is considered.

As regards treatment, this can be summed up in one word, namely, *rest*, which I think is the most important weapon we have at present in the treatment of tubercle. Though rest forms the foundation of the treatment, important adjuvants such as fresh air, good feeding, with the use of heliotherapy and Sanocrysin in selected cases, all help towards the arrest of the disease. The degrees of rest as carried out at Elswick are :—

1. Conservative. (*a*) Carefully supervised rest, either in bed or for so many hours per day. (*b*) Lung splinting, with the patient immobilised in bed in the supine position.

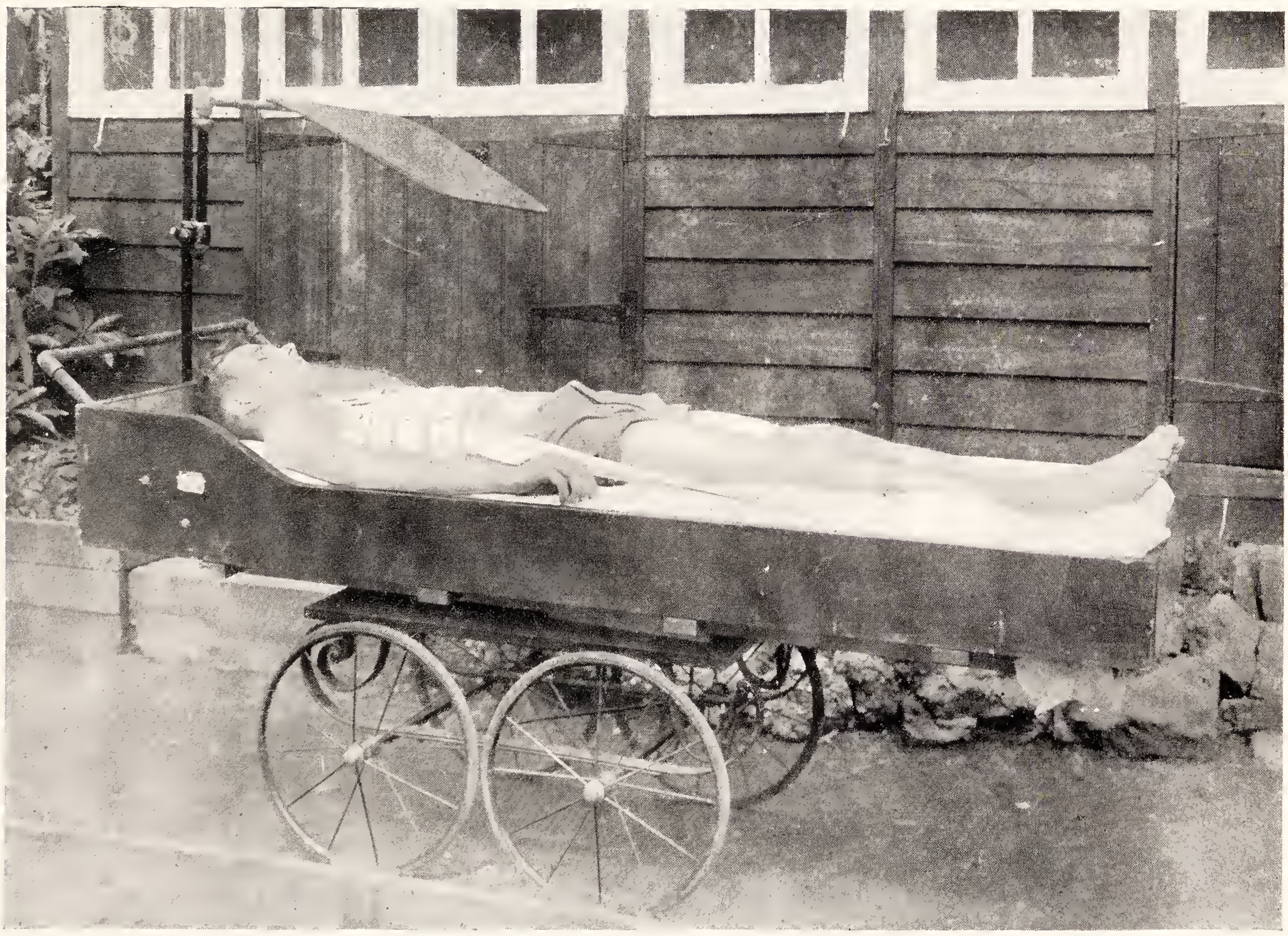
2. Surgical. (*a*) Artificial pneumothorax. (*b*) Oleothorax. (*c*) Phrenic evulsion.

A certain proportion of the patients appear to improve with carefully supervised rest, either in bed or for a certain time during the day. In other cases some more restricted form of rest has to be considered, so at Elswick we evolved a special jacket which not only limits the movements of the lungs but ensures the patient being kept absolutely still in bed. We further devised a special bed on wheels (see photograph here inserted) so that the patient can be wheeled about in the grounds and out in the country lanes, which proves a great factor in improving the patient's mental outlook. By this special method of rest we have not only been able to control a stubborn temperature and pulse but we have obtained a marked improvement in the patient's general condition, with diminution in the cough and sputum, and in most cases a definite gain in weight. The skiagrams, L.S. 1(*a*), 1(*b*), 2(*a*) and 2(*b*), show the improvement that has taken place in cases treated by this means.

By conservative methods one can obtain apparent quiescence of the disease, but whether such condition is going to be permanent is considerably affected by the length of stay in the sanatorium. With this end in view I think that it is important to retain the patient in the institution for several months after the disease apparently has become quiescent.

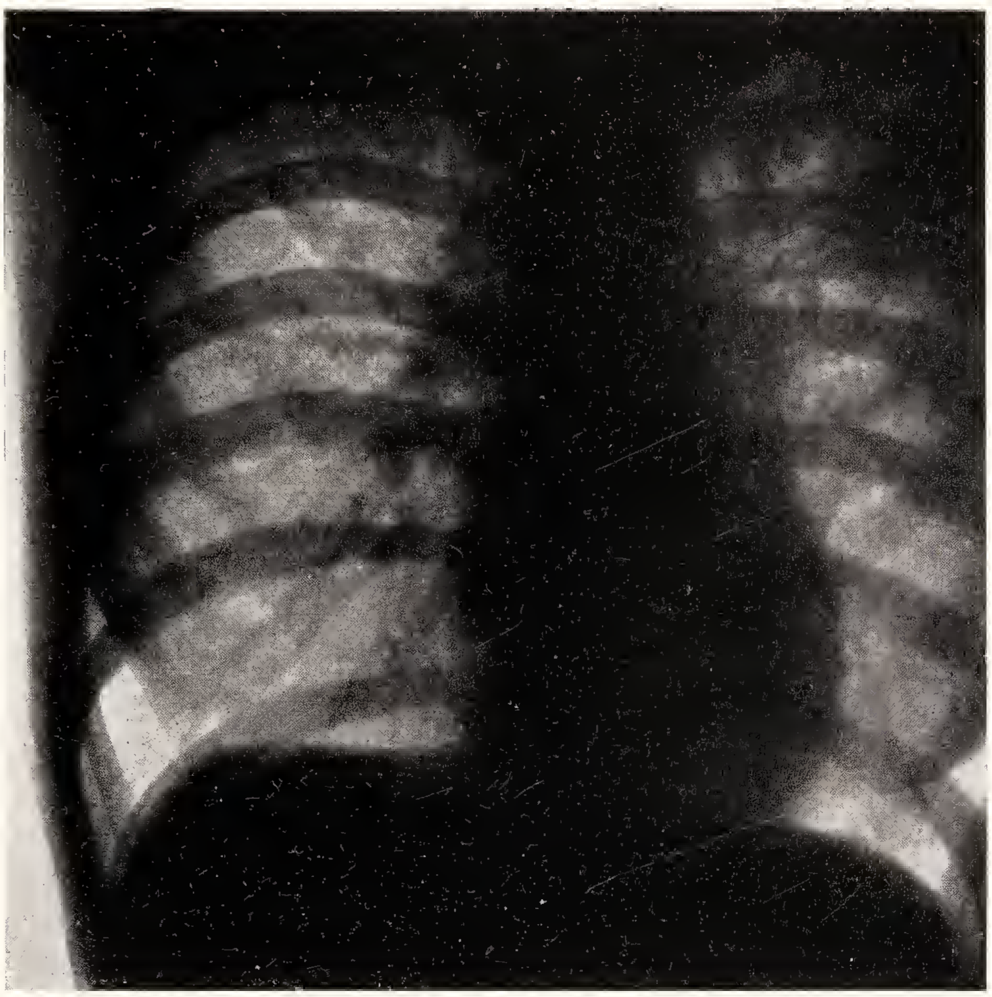
Many cases, of course, respond to conservative methods of rest, but there are some which do not show a favourable response. In such cases, and with those where on admission the condition of the lungs indicates some more thorough method of localising the affected organs, surgical interference is considered. This has been met by the induction of artificial pneumothorax and oleothorax, and by phrenic evulsion. (The report on phrenic evulsion appears on page 24).

At Elswick artificial pneumothorax has been attempted in 25 cases, in 18 of which a collapse has been obtained. The percentage of cases in which fluid developed was 0·3. In one case it was necessary to carry out a gas replacement and finally to do an oleothorax. This particular case was one of pleural effusion of considerable duration prior to admission. When the fluid was withdrawn and replaced by gas, X-ray examination revealed marked thickening of the visceral pleura, giving little prospect of an immediate re-expansion of the lung. With repeated tappings and gas replacements the fluid tended to become more and more turbid, and it was deemed advisable to replace the fluid with 5 per cent. gomenol in sterilised olive oil. The method adopted was to give a preliminary injection of 5 cc. of the oil and gomenol, followed in a few days, if there was no reaction, by 10 cc. and 20 cc. As no reaction occurred with these amounts, the whole of the fluid was withdrawn and replaced with olive oil and gomenol. The result of the operation has been definitely to diminish the turbidity of the fluid and very markedly retard its rate of re-accumulation. The patient concerned has been discharged but returns at intervals for re-examination and refills. Five per cent. gomenol in paraffin also has been used to fix a mobile mediastinum which was interfering with the production of a pneumothorax.

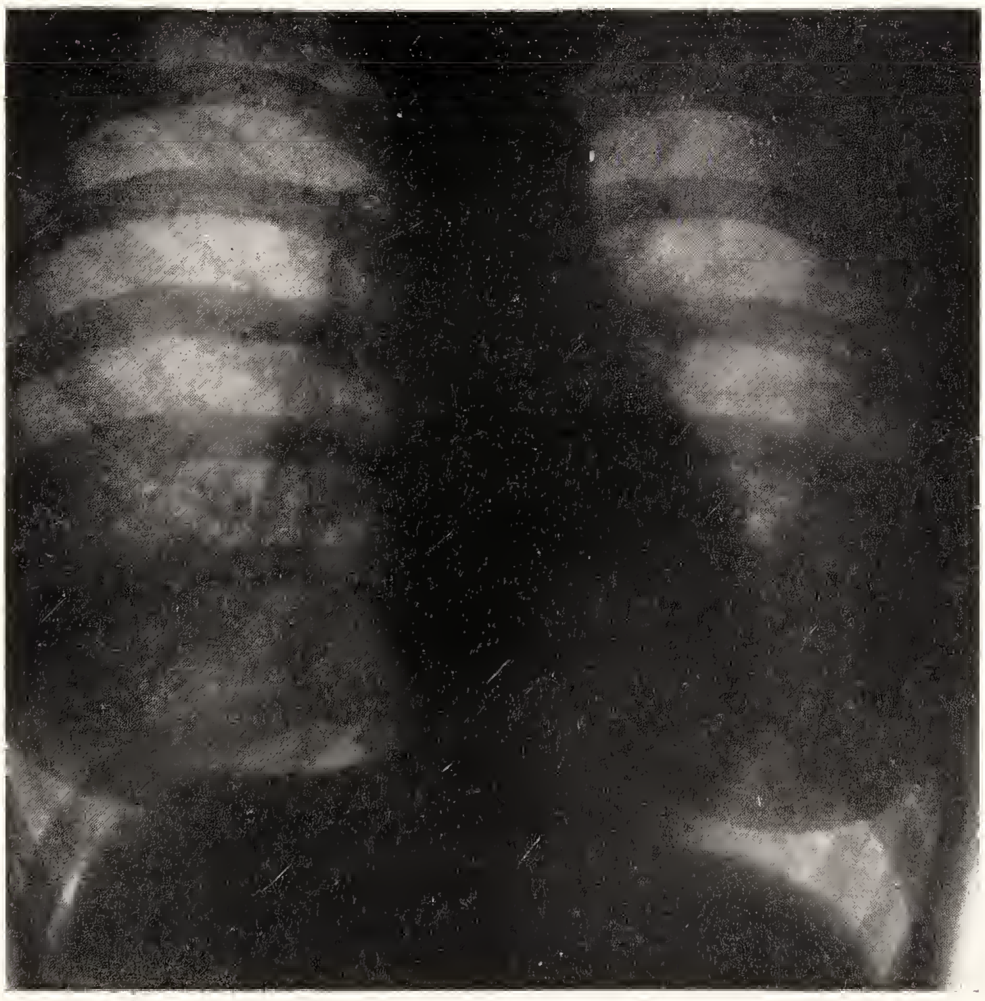


Elswick Sanatorium. Patient on specially constructed carriage in straps undergoing heliotherapy. (See last paragraph, page 99).

Skiagrams Illustrating Lung Strapping.

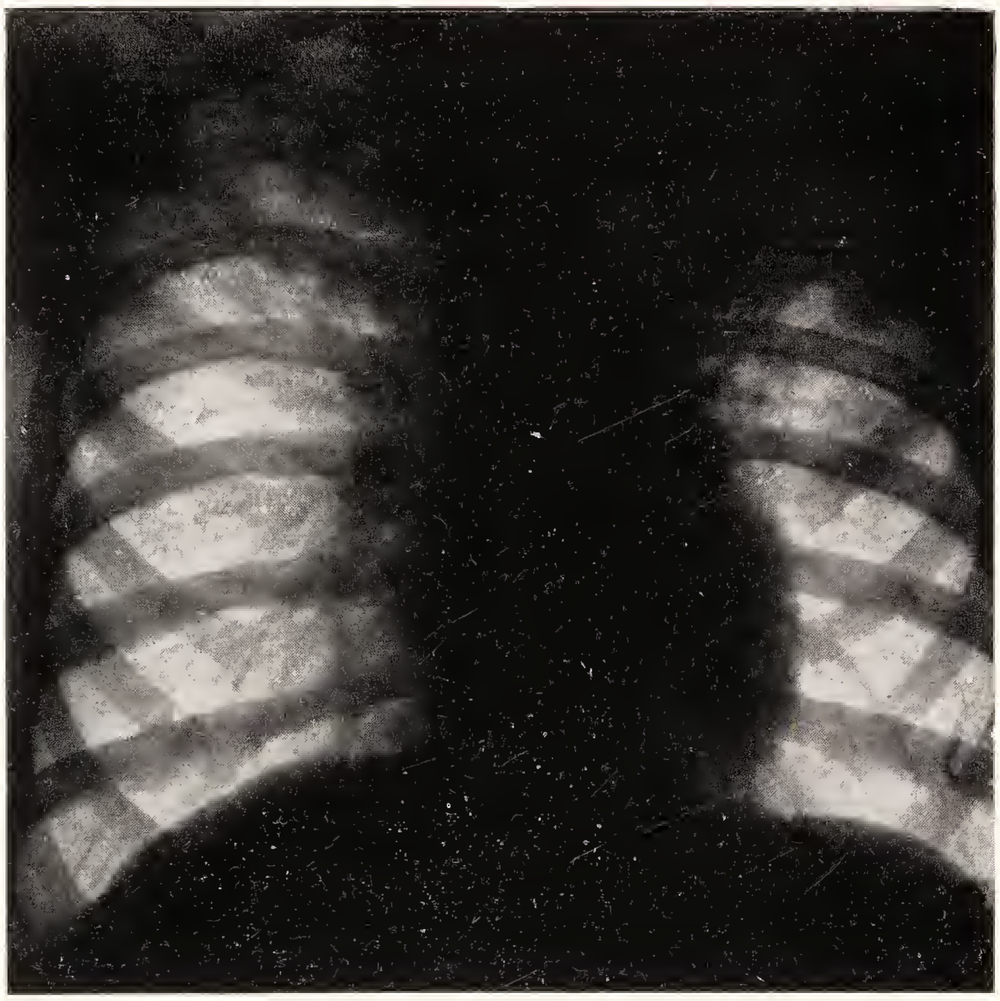


L.S.1(*a*).—Patient M.J.B., aged 25, female, sputum + + +. Skiagram taken 9/9/29 shows mottling at apex of the right lung and over the upper two-thirds of the left.

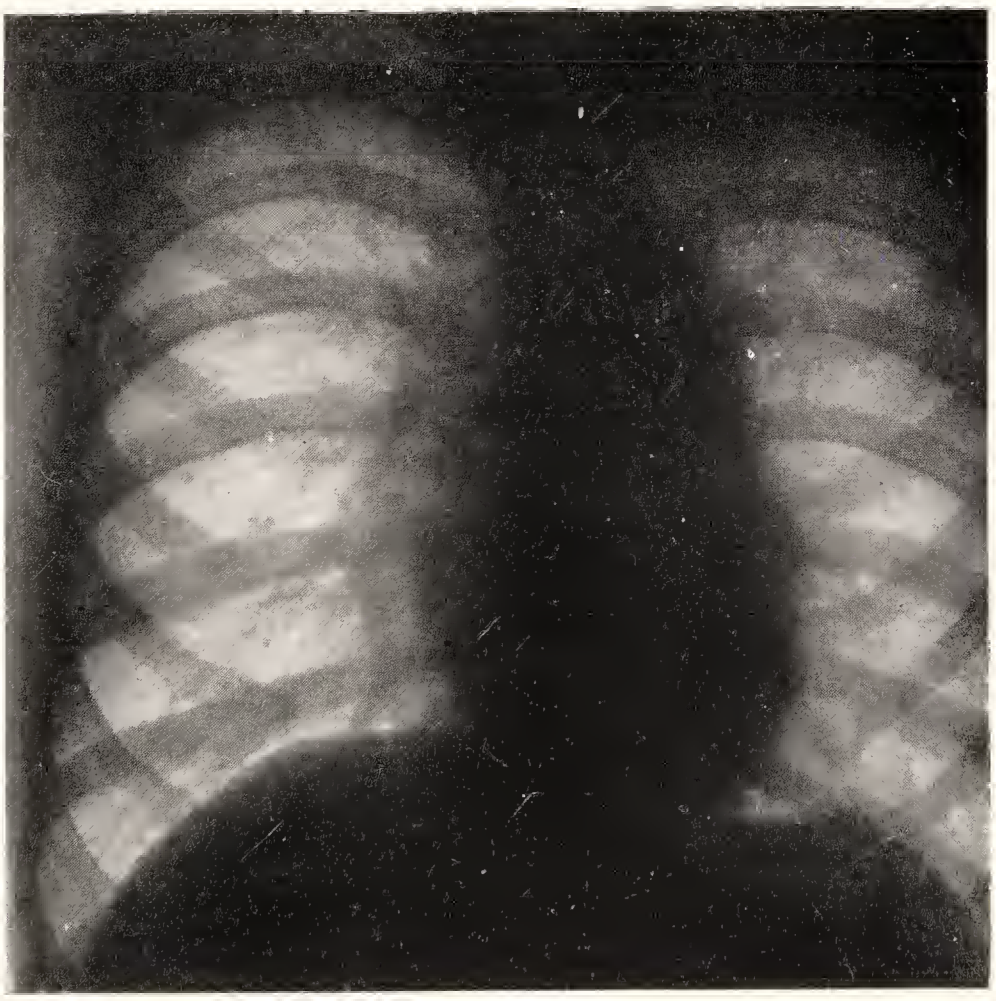


L.S.1(*b*).—Same patient. After 15 months' treatment, the first 4 of which the patient was strapped down in bed, by methods described on pages 99–100, to procure general rest to the body and limited rest to the lungs. Skiagram taken 15/1/31 shows clearing up of the lesion on the right side and to a lesser extent on the left. The 11 monthly examinations of the sputum before discharge all negative. During period of strapping there was a gain in weight of 1 st., and the total gain before discharge was 1st. 8 lbs.

[*Skiagrams taken by Dr. Leggat at Elswick Sanatorium.*



L.S.2(*a*).—Patient H.S., aged 19, male, sputum negative. Skiagram taken 17/3/30 shows extensive disease over the upper half of both lungs.



L.S.2(*b*).—Same patient. Skiagram taken after 13 months treatment, 5 of which he was strapped down; shows marked improvement on the right side and to a lesser extent on the left. Temperature reduced from 98–102·2 to 97·2–98·4. Still an in-patient having calcium inhalation combined with heliotherapy. Gain in weight after strapping, 6 lbs, total gain in weight 1st. 3lbs. Negative sputum on admission now none. Patient appears fit and is on full work.

[*Skiagrams taken by Dr. Leggat at Elswick Sanatorium.*]

The non-pulmonary section has been continued mainly on conservative methods of treatment with the free aid, in suitable cases, of heliotherapy, both artificial and natural, as has been the case during the preceding years. The lengthy period of treatment requisite in most cases of surgical tuberculosis admitted is the main cause of the comparatively low number of admissions to this section, the supply of beds naturally being contingent on the number of patients discharged. All celluloid splints required have been made on the premises in the special plaster room adjoining the surgical wards.

In the pulmonary section the average length of stay of patients discharged during the year worked out at 5·2 months. Of the patients who on admission had a positive sputum, 34·6 per cent. were discharged with either a negative sputum or none at all. Skiagrams taken of sanatorium patients numbered 362, and sputum examinations 275 (100 of which were positive).

Every endeavour has been made to find occupational therapy of not too strenuous a character for the convalescent cases, special care being exercised in putting patients on jobs in which they showed an interest, and as the nature of the work is essentially only of a light kind, the scheme has proved commendable for keeping the minds of the patients occupied.

The entertainment of the patients has been well catered for by the excellent wireless installation, cinematograph shows, billiards, the organisation of frequent whist drives, table games, etc. ; during the summer months a bowling green is at the disposal of the male patients, whilst a putting green is available for the female patients.

The poultry farm, maintained by the female convalescent patients under the supervision of one of the permanent staff, again has proved a helpful and profitable venture, 20,833 eggs having been passed into the house during the year and an excess of income over expenditure of £40 having been recorded.

I cannot lay too much stress on the pleasure derived by both patients and staff alike from the beauty of the gardens and grounds of the sanatorium.

I take this opportunity of expressing my appreciation of Dr. Armour's assistance, particularly in surgical work, and the help he has given me in recording the cases ; also of the help and co-operation of the matron—Miss I. G. Barclay—and of the excellent services of the visiting dentist—Mr. J. J. Ward of Preston. Mr. H. E. Langham, the clerk and laboratory assistant, has also given valuable service, particularly with X-ray photographic work.

The following Table 30 gives the condition of patients discharged during 1930 :—

Classification on admission to the sanatorium.	Condition at time of discharge.	Duration of residential treatment in the sanatorium.				Total.	
		Under 3 months.	3—6 months.	6—12 months.	More than 12 months.	No.	%
	(a) Pulmonary.						
T.B. Minus.	Quiescent	4	7	3	—	14	63·6
	Improved	3	2	—	—	5	22·7
	No material improvement ...	3	—	—	—	3	13·6
	Died in sanatorium	—	—	—	—	—	—
T.B. Plus 1.	Quiescent	2	2	4	—	8	53·3
	Improved	1	1	2	2	6	40·0
	No material improvement ...	—	—	—	—	—	—
	Died in sanatorium	—	1	—	—	1	6·7
T.B. Plus 2.	Quiescent	—	2	1	4	7	33·3
	Improved	5	2	1	—	8	38·1
	No material improvement ...	3	1	—	1	5	23·8
	Died in sanatorium	—	—	1	—	1	4·8
T.B. Plus 3.	Quiescent	—	—	—	—	—	—
	Improved	—	—	—	—	—	—
	No material improvement ...	—	—	—	—	—	—
	Died in sanatorium	—	—	—	—	—	—
	(b) Non-Pulmonary						
Bones and Joints.	Quiescent	—	4	5	5	14	66·7
	Improved	2	1	—	2	5	23·8
	No material improvement ...	—	—	—	—	—	—
	Died in sanatorium	—	1	1	—	2	9·5
Abdominal.	Quiescent	—	—	—	1	1	100·0
	Improved	—	—	—	—	—	—
	No material improvement ...	—	—	—	—	—	—
	Died in sanatorium	—	—	—	—	—	—
Peripheral Glands and Other Organs.	Quiescent	—	—	2	—	2	66·7
	Improved	—	—	1	—	1	33·3
	No material improvement ...	—	—	—	—	—	—
	Died in sanatorium	—	—	—	—	—	—
	(c) Observation Cases	Under 1 week.	1—2 weeks.	2—4 weeks.	More than 4 weeks.		
Observation for purpose of diagnosis.	Tuberculous	—	—	—	—	—	—
	Non-tuberculous	—	—	—	1	1	50·0
	Doubtful	—	—	—	1	1	50·0
					Total ..	85	

(4) CHADDERTON PULMONARY HOSPITAL, NEAR OLDHAM.

Visiting Medical Superintendent ... ... Dr. JAMES WOOD.

(Dr. Wood is also medical officer to the Chadderton, Royton, and Crompton Joint Hospital Board, and the medical officer of health of the Urban District of Chadderton).

Matron: Miss E. SIMMONS.

An agreement was made on the 1st October, 1919, with the Chadderton, Royton, and Crompton Joint Hospital Board for the use of the buildings at Racefield, erected as a smallpox hospital, for the treatment of patients suffering from pulmonary tuberculosis. Accommodation is provided for 45 female patients. The County Council are under an obligation to vacate the premises in case of an epidemic of smallpox.

Dr. Wood reports as follows :—

During the year 98 patients were admitted; of this number twelve were under 18 years of age and nine between 18 and 21 years of age. One case was admitted for observation. Seventy-three patients were discharged (including ten who were transferred to other institutions) and 23 deaths occurred.

No new line of treatment has been followed. Many cases have markedly improved on the usual treatment by rest, fresh air, suitable food, etc.

A considerable number of the patients suffer much from the deplorable condition of their teeth. Suitable cases have been granted dental attention.

During the year 230 specimens of sputum were examined—109 were positive and 121 negative.

Most of the patients have been contented and have appreciated the care which the nursing staff has given to them.

The special Xmas fare provided was thoroughly enjoyed, as were also the whist drives and concert arranged by the patients and the staff.

Our thanks are due to the people from Royton, Chadderton, etc., for the enjoyable entertainments which they have given at the hospital.

The patients and staff availed themselves of the books provided by the respective libraries, 956 books being taken out during the year.

(5) HEATH CHARNOCK PULMONARY HOSPITAL, NEAR CHORLEY.

Visiting Medical Superintendent ... ... Dr. J. W. RIGBY.

(Dr. Rigby is also medical officer to the Chorley Joint Hospital Board).

Matron: Miss H. SINCLAIR.

By agreement with the Chorley Joint Hospital Board, the County Council erected, equipped, and furnished two pavilions, containing 16 and 14 beds respectively, together with a dining-hall and some staff accommodation. The Joint Board are responsible for the administration of the hospital, the County Council paying to them the cost of maintenance.

Dr. Rigby has kindly furnished the following report :—

The year 1930 has seen the work of the hospital carried on in very much the same manner as in previous years. There were 50 cases admitted, 29 discharged, and 23 died.

The specimens of sputum examined totalled 80, 72 being positive.

No new method of treatment has been systematically tried, but anything new for the relief of symptoms has been obtained. The tablet of terpin and heroin has been helpful for the cough. Anti-catarrhal vaccine and hæmoplastin have also been found efficient in suitable cases.

The better health of the patients has enabled us to have more social activities this year than formerly. Whist drives and a garden party, to which friends were invited, were organised. Four motor trips were run to the patients' favourite places, Blackpool and Arnside, and were very much enjoyed. We have been pleased to receive the usual visits from and be entertained by the concert parties, notably the Bolton Choral Union, who gave us an excellent concert. The wireless loud speaker has been replaced by earphones to each bed. This has been carried out through the generosity and under the supervision of Mr. Rowe, to whom we are all very grateful.

A hard court for tennis has been constructed for the use of the staffs of both the Joint Hospital Board and the pulmonary hospital. The County Council have contributed towards this.

The machinery in the laundry has been replaced by more up-to-date models, thus enabling the wash to be done in less time. To this also the County Council have contributed.

A special effort was made by the nursing staff to celebrate Christmas in a happy way. After a Christmas dinner in a suitably decorated hall a concert was given ; later in the evening there was a sing-song during which each patient received a gift from a large Christmas tree. The evening was a great success in every way.

A word of commendation is due to the matron and all the nursing staff for their cheerful devotion to duty in what are sometimes, owing to the number of seriously ill cases in a pulmonary hospital, rather depressing surroundings.

(6) WRIGHTINGTON HOSPITAL, PARBOLD.

The County Council, in November, 1921, purchased Wrightington Hall, outbuildings and estate of 159 acres, with a view to utilising it eventually for the provision of accommodation for children and adults.

The Hall is situated close to the high road between Standish and Parbold, about six miles north-west of Wigan, and stands at an altitude of 300 feet above sea level.

Plans were prepared in 1921 for the adaptation of the buildings, but under instructions from the Ministry of Health no work was commenced, and the scheme remained in abeyance until early in 1926, when the County Council approved generally of proposals to adapt the Hall and erect buildings to accommodate 226 patients. Plans have been approved by the County Council and the Ministry of Health, and a Government grant of £180 per bed has been promised towards the capital expenditure, which is estimated to be £129,520. The contractors (Messrs. J. A. Milestone & Sons, Ltd., of Wallasey) commenced building operations on the 13th August, 1929.

Description of Site and Buildings.

The whole of the new buildings have been placed on the higher ground of the estate, 300 feet above sea level, the site having a slight fall from the north-east to the south-west. The treatment block lies centrally in the group and thus affords convenient access to the various pavilions. The kitchen and administrative blocks have been placed on the central axis of the group, and are connected by means of covered ways to enable patients and staff to pass to and from the treatment block and pavilions.

The grouping of the various buildings has been planned to save as much expense as possible in the laying of pipe and cable mains, and at the same time to provide adequate air-space between the blocks.

The following is a list of the accommodation provided :—

Pavilions.—Three one-storey pavilions for children, each containing 40 beds (in two wards of 20 each), a warm ward for 4 beds, and 2 single cubicles ; recreation room for ambulant cases, duty room, teacher's room, kitchen, pantry, surgical dressing room, linen room, and the necessary lavatory accommodation and stores. (No. of beds for children, 138).

Two one-storey pavilions—one for men and the other for women—each with a ward for 30 non-pulmonary cases and cubicles for 10 combined cases; lavatory accommodation, ward kitchen, dressing room, and a room at each end to be used as combined dining-room and recreation room. (No. of beds for adults, 80).

An isolation block of 8 beds. Total beds, 226.

Treatment block, containing operating room, sterilising room, X-ray room, dark room, artificial light department, lupus treatment room, surgeon's dressing room, sisters' room, douche room, dispensary, consulting room, dentist's room, anæsthetic room, plaster room, dressing room, laboratory, recovery room with lavatory and w.c., staff w.c.

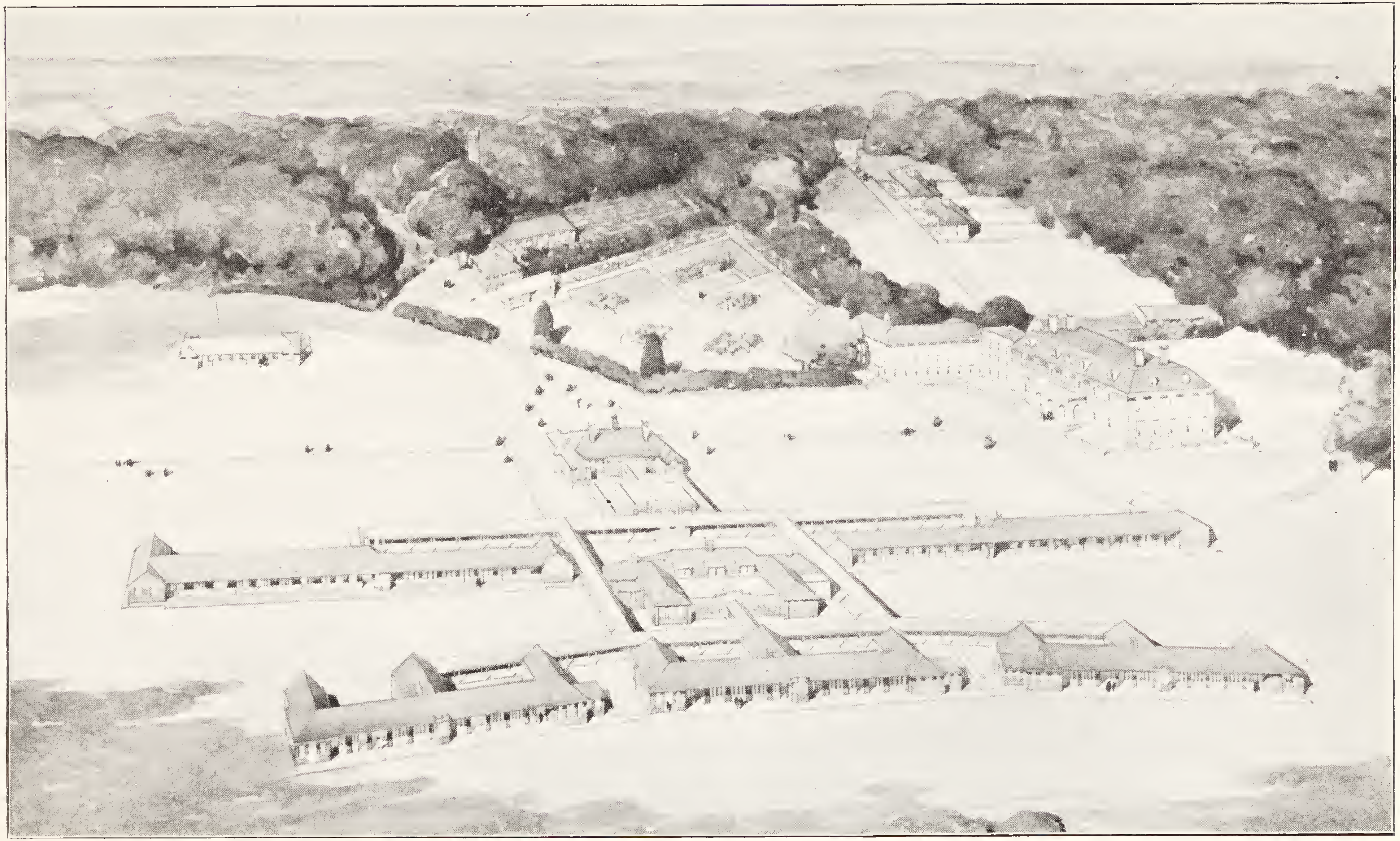
Kitchen block, consisting of main kitchen, two sculleries, larder, cook's pantry, servery; stores for dry goods, crockery, bread, fresh meat, fish, vegetables, coke and coal.

Official block, containing committee room, medical superintendent's office, waiting room, clerk's office, matron's office, lavatory accommodation (male and female), home sister's room, dining-room, kitchen, pantry; quarters for assistant medical superintendent (sitting-room, three bedrooms, dining-room, bath and lavatory accommodation).

Power house is placed near a side road and at the rear of the official block, but in as close proximity as is advisable, so that the heat and domestic hot water can be supplied from there to the various buildings. The block contains: Boiler-house (for two Lancashire boilers), engine-room, wash-house and ironing room, lavatory accommodation, destructor, battery room, workshop, disinfector house, fuel store.

Accommodation for nurses and maids.—The more modern part of the Hall has been adapted for the accommodation of the matron, sisters, nurses and domestic staff, *i.e.*, nurses' dining-room, maids' dining-room, matron's sitting-room, visitors' room, sisters' sitting-room, two nurses' sitting-rooms, maids' sitting-room, laundresses' sitting-room, cooks' sitting-room, lecture room, kitchen, scullery, pantry and stores, sick bay of four beds, bath and lavatory accommodation on each floor, bedroom accommodation for 43 beds. On the demolished older portion of the Hall a new wing has been erected containing bedrooms for 60 nurses and maids, with lavatory accommodation.

Medical superintendent's house stands at a distance of some 300 to 400 yards from the institution, with access thereto and to the main road.



[*Sketch prepared by County Architect.*

WRIGHTINGTON HOSPITAL, PARBOLD, LANCS.

New County Hospital for 226 tuberculous patients (non-pulmonary: 60 adults, 146 children; combined pulmonary and non-pulmonary: 20 adults).
Building work commenced 13th August, 1929, and hospital to be opened by 18th December, 1931.

Workmen's cottages.—Two pairs of cottages for workmen have been built on the drive leading from the main road to the back entrance.

Outbuildings.—Provision is being made in the outbuildings for the following: Garages, leather workshop, metal shop, splint room, store.

Heating.—The buildings are heated by hot water on the low-pressure system. The water will be pumped from the boiler-house to the various blocks, which will be heated by branches taken from the heating mains.

Hot water supply.—The domestic hot water supply is obtained from calorifiers fixed in the various blocks.

Lighting.—The buildings are lighted by electricity from the public supply.

The water supply will be taken from a well purchased from the Wigan Corporation, situated at a distance of 1¼ miles from the institution. The water will be pumped from the well into a storage reservoir, which has been formed on the high ground between the well and the institution, whence it gravitates by means of a 6 inch main to the institution.

Drainage and sewage.—New sewage works have been installed at a distance of 250 yards from the nearest pavilion. A dual system of soil and surface drains will be provided and the site of the pavilions will be surface drained.

Medical, nursing and domestic staffs.—It is anticipated that the following staff will be required, and the staff quarters have been planned to provide this accommodation: Medical superintendent; senior and junior assistant medical officers; consulting surgeon or surgeons for major operations; matron and assistant matron, sisters and nurses 64; domestic staff 40; outside male employees 18.

Teaching staff.—A head teacher and four assistant teachers will also be required.

(7) PEEL HALL PULMONARY HOSPITAL (DISPENSARY AREA NO. 4).

(8) RUFFORD PULMONARY HOSPITAL (DISPENSARY AREA NO. 5).

(9) WITHNELL PULMONARY HOSPITAL (DISPENSARY AREA NO. 2).

It has already been explained in the chapter on the dispensary organisation (pages 41 to 43), that the Administrative County, containing a population of 1,806,960, is divided into five large dispensary areas, with an average population of 350,000, each area being in the charge of a consultant tuberculosis officer who has two assistant tuberculosis officers and other staff. The aim of the County Council has been to provide in each area a pulmonary hospital containing about 50 beds for the diagnosis of observation cases and the treatment of intermediate and advanced cases of pulmonary tuberculosis near their homes, the consultant tuberculosis officer of the particular dispensary area acting as the visiting medical superintendent. In addition to the five large areas there are two dispensary sub-areas—Furness and Fylde—in the charge respectively of the medical superintendent of the High Carley Sanatorium and the Elswick Sanatorium. Thus, the dispensary side of the work is not divorced from the institutional side.

The report for each of the above-named hospitals is contained in the report of the consultant tuberculosis officer for the area, *viz.*, for Peel Hall in Dispensary Area No. 4, page 70 ; for Rufford in Dispensary Area No. 5, page 81 ; for Withnell in Dispensary Area No. 2, page 60.

XXI.—DENTAL TREATMENT.

Patients eligible for dental treatment are those who, in the opinion of the medical superintendent or tuberculosis officer, are unable to derive full benefit from their treatment for tuberculosis owing to defective teeth. Patients already covered by dental schemes of other bodies, *e.g.*, school children and tuberculous pensioners, are excluded from benefit. For insured persons who are tuberculous many approved societies make a contribution towards the cost of dental attention required.

At the County sanatoria of High Carley and Elswick the dental work is carried out by a visiting dentist.

The following statement shows the dental work carried out during 1930, under the scheme approved by the County Council :—

Table 31.

	At High Carley Sanatorium.	At Elswick Sanatorium.	At other sanatoria and hospitals.	At patients' homes.	Total.
Number of individual patients who received dental attention (any form)	168	108	67	23	366
New dentures provided—					
(*a*) Complete sets	17	5	28	14	64
(*b*) Partial sets	13	12	13	5	43
Repairs to dentures	7	2	6	4	19
Number of extractions	273	342	331	203	1,149
Number of fillings	57	39	9	1	106
Number of scalings and cleanings...	2,099	247	4	3	2,353
Number of other operations ...	816	81	—	—	397

The dental scheme, considering the benefit derived by the patients, has proved economical, and is fully justified.

XXII.—THE TREATMENT OF PULMONARY TUBERCULOSIS

Institutional Treatment.

The sanatorium used to take almost exclusively early and intermediate cases likely to improve, and the pulmonary hospital a majority of advanced cases for whom there was little hope of cure. During the past few years, however, the provision of additional accommodation in pulmonary hospitals, the installation of X-ray plants and the application of special treatment (*e.g.*, artificial pneumothorax and Sanocrysin) have made any sharp division between the type of patient sent to sanatoria and to pulmonary hospitals untenable, particularly for the intermediate stage case which may be sent to one or the other according to the state of the waiting list. A further important point is that it is not advisable, for obvious reasons, to take in pulmonary hospitals more than one-third acute cases.

The following Table 32 summarises the *immediate* results of treatment of patients discharged in 1930 from sanatoria and pulmonary hospitals :—

Classification on admission to the institution.	Condition at time of discharge.	Duration of residential treatment in the institution.												Total patients discharged.	
		Under 3 months.			3—6 months.			6—12 months			More than 12 months.				
		M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	No.	%
T.B. Minus.	Quiescent	9	12	1	16	9	3	11	5	7	—	1	10	84	35·0
	Improved	30	13	7	18	18	3	5	5	2	3	2	2	108	45·0
	No material improvement	10	8	3	5	—	—	—	1	1	2	—	—	30	12·5
	Died in institution. ...	5	7	—	3	1	—	—	—	—	1	1	—	18	7·5
T.B. Plus 1 (Early)	Quiescent	3	1	—	2	6	—	5	3	—	—	—	1	21	19·4
	Improved	8	2	—	8	8	—	8	11	—	5	4	1	55	50·9
	No material improvement	6	4	—	4	—	—	2	2	—	1	2	—	21	19·4
	Died in institution. ...	3	2	—	3	1	—	1	—	—	1	—	—	11	10·2
T.B. Plus 2 (Intermediate)	Quiescent	3	—	—	8	7	1	8	2	—	4	5	—	38	6·1
	Improved	32	26	2	60	47	—	57	48	—	13	15	1	301	48·5
	No material improvement	34	32	2	19	19	—	17	7	—	7	12	2	151	24·3
	Died in institution. ...	42	26	—	20	10	1	15	6	—	8	2	—	130	20·9
T.B. Plus 3 (Advanced)	Quiescent	—	—	—	1	—	—	1	—	—	—	—	—	2	1·1
	Improved	6	2	—	16	13	—	10	8	—	8	1	2	66	35·5
	No material improvement	14	14	—	3	5	1	3	5	—	3	4	—	52	27·9
	Died in institution. ...	25	18	1	8	3	—	3	6	—	2	—	—	66	35·5
	Total	230	167	16	194	147	9	146	109	10	58	49	19	1154	—
		Under 1 week.			1—2 weeks.			2—4 weeks.			More than 4 weeks				
Observation for purpose of diagnosis.	Tuberculous	1	—	—	—	2	—	—	4	—	6	1	2	16	26·2
	Non-tuberculous	1	—	1	—	—	—	7	3	1	14	11	2	40	65·6
	Doubtful	—	—	—	1	—	—	—	—	—	1	—	1	3	4·9
	Died	1†	—	—	1‡	—	—	—	—	—	—	—	—	2	3·3

Grand Total 1,215

*Classification in accordance with Memorandum 37/T of the Ministry of Health.
†Post-mortem revealed disease of aortic and mitral valves.
‡Diagnosis in this case was multiple carcinoma.

The table illustrates that the best results are achieved when institutional treatment is given before the sputum becomes positive—the more advanced the disease the less satisfactory progressively are the results. This only goes to prove what has been said so often, that the earlier treatment for pulmonary tuberculosis is commenced the better the chances of recovery.

Referring to the pulmonary hospitals, they are also used for patients sent for the purpose of isolation, for observation in regard to diagnosis, and particularly for education in general methods of hygiene which, when the patients return home, can be applied much more effectively after a short period of institutional treatment.

In four of the five dispensary areas, one of these pulmonary hospitals is in the charge of the consultant tuberculosis officer, an arrangement of the highest importance because patients come to these hospitals from the area administered by the tuberculosis officer, who is, therefore, conversant with the home conditions. Further, it is of great advantage to the tuberculosis officer, because he can himself apply certain forms of treatment and carry out valuable clinical and research work.

Other patients requiring isolation are accommodated in the pulmonary hospitals (not administered by the County Council) situated in or near the area. In order that the consultant tuberculosis officers may keep themselves in touch with such cases, arrangements have been made (with one or two exceptions, where only occasional County cases are treated) for the tuberculosis officers to visit periodically the pulmonary hospitals in their area and confer with the medical superintendents on the following matters :—(1) The question of extension of patients' treatment or their return home, having special regard to the home conditions which are known to the tuberculosis officer ; (2) the question as to patients' future treatment ; (3) applications from patients for transfer to other institutions, or for their discharge home, and to settle, where possible, any difficulties or complaints by patients which may arise.

The foregoing working arrangements have enabled the highly infectious cases with unsatisfactory home conditions to remain at the pulmonary hospitals for long periods for the purpose of isolation, and the patients who have made good progress and are capable of light work to be transferred to sanatoria for the continuation of their treatment.

By the Public Health Act of 1925, a county council or a local sanitary authority now have power to secure the compulsory isolation of infectious cases on the order of the magistrates. So far only one patient has been so dealt with, in November, 1930, by the

Farnworth Urban District Council in collaboration with the consultant tuberculosis officer of the area.

Brief particulars are given in the following Table 33 of the 14 pulmonary hospitals available for the treatment of County patients :—

Name of hospital.	1930 : Number of patients—		
	Admitted.	Discharged.	Died.
Burnley	49	33	13
Chadderton, near Oldham	98	73	23
Eccleston Hall, near St. Helens	6	3	4
Heath Charnock, near Chorley	50	29	23
Hefferston Grange, Cheshire	22	13	9
Linacre, near Liverpool	3	1	2
Marland, Rochdale	7	6	1
Mount Pleasant, Liverpool	1	—	2
Peel Hall, Little Hulton	121	91	31
Pemberton, Wigan	6	6	1
Rufford, near Ormskirk	119	104	18
Westhulme, Oldham	2	1	1
Withnell, near Chorley	88	62	26
Wolstenholme Hall, Norden	52	33	17
TOTAL	624	455	171

XXIII.—INSTITUTIONAL ACCOMMODATION.

On the 31st December, 1930, there were altogether 906 beds at sanatoria and hospitals occupied by County patients, as compared with 874 at the end of 1929. The number of beds occupied by pulmonary cases worked out at 61 per 100 pulmonary deaths. For non-pulmonary tuberculosis the proportion was 102 beds per 100 non-pulmonary deaths; when the extra accommodation at the Wrightington Hospital is available the proportion will then be 140 beds per 100 non-pulmonary deaths.

Table 34 below gives a summary of the beds occupied at the end of 1930 at the several types of institutions, the names of which are contained in Appendix VII.

Type of Institution.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
Sanatoria	302	48	1	9	360
Pulmonary Hospitals	280	1	1	—	282
Training Colonies	3	—	5	—	8
Observation Cases	4	2	1	1	8
General Hospitals	1	—	12	8	21
Special Hospitals	2	3	85	136	226
Skin Hospital	—	—	1	—	1
Total	592	54	106	154	906
	646		260		

Of the 906 beds occupied, 428 were in sanatoria or hospitals belonging to the County Council, and 478 were in non-County institutions.

The Wrightington Hospital, which will accommodate 226 cases of non-pulmonary tuberculosis (including special provision for 20 cases with also pulmonary tuberculosis), is now approaching completion and will be opened by the 18th December, 1931.

The number of beds in occupation by County patients on the 31st December of each year is as follows:—1926, 825; 1927, 819; 1928, 858; 1929, 874; and 1930, 906.

Of the 646 beds occupied at the end of 1930 by pulmonary patients, 76 per cent. of the cases were classified as "T.B. plus," that is, sometime during treatment their sputum was positive.

The number of beds occupied fluctuates during the course of the year, there being a greater demand for beds in the summer than in the winter. The list of patients waiting for institutional treatment, averaged at monthly periods during 1930, was as follows:—Sanatoria, adults 49, children 3; pulmonary hospitals, adults 55, children 2; special hospitals, adults 21, children 17; general hospitals, adults 12, children 5.

At the end of the year at the request of the Ministry of Health a return was obtained from the medical superintendents of public assistance hospitals of the number of patients suffering from tuberculosis chargeable to the Lancashire County Council who were in such hospitals. The following statement has been prepared from the returns so furnished :—

TABLE 35.—*Tuberculous persons chargeable to the Lancashire County Council in Public Assistance Hospitals on the* 31*st December,* 1930.

	Adult males.	Adult females.	Children.	Total.	
Pulmonary tuberculosis	22	19	3	44	102
Non-pulmonary tuberculosis ...	12	15	31	58	

The foregoing total of 102 cases in public assistance hospitals contains those tuberculous patients whose mental condition, or other complication, does not permit of their being treated in sanatoria and hospitals. Every effort is made to transfer as soon as possible patients who require special treatment for tuberculosis to the sanatoria and hospitals provided for such treatment. This co-ordination will be more effective when additional accommodation for non-pulmonary cases is available at the new Wrightington Hospital.

XXIV.—HOME TREATMENT AND DISPENSARY TREATMENT OR SUPERVISION.

All notified cases of tuberculosis while at home are under the supervision of the tuberculosis officers and tuberculosis health visitors, in addition to the treatment that may be obtained from their medical attendants. Ordinary medical treatment at dispensaries (as distinct from special treatment such as artificial light and artificial pneumothorax) has never been undertaken, unless the patient has no doctor or requires some special form of treatment. The number of consultations with medical practitioners in 1930 was as follows: At the homes of patients, 893; otherwise, 4,844; total, 5,737.

The subject of this chapter was dealt with in the annual report for 1928, and there is no need to recapitulate in the present report.

XXV.—TREATMENT AND OCCUPATIONAL TRAINING; VILLAGE SETTLEMENTS.

The subject of this chapter was reviewed in the annual report for 1928.

The following table gives particulars of the patients so far granted a course of treatment combined with training :—

TABLE 36.

Classification on admission.	TOTAL NUMBER ADMITTED.		Total number discharged.	Average duration of stay at Colony* (months).	PATIENTS DISCHARGED (1920 to 1930).			Still undergoing training, 31st December, 1930.
	August, 1920 to Dec., 1929.	1930.			Course of training completed.	Training terminated before completion of course.	Transfer to sanatoria or hospital.	
T.B. Minus ...	38	—	37	14·50	18	19	—	1
T.B. Plus 1 ...	24	2	24	16·00	8	14	2	2
T.B. Plus 2 ...	31	—	31	14·25	15	13	3	—
T.B. Plus 3 ...	3	—	3	12·00	1	2	—	—
Non-pulmonary	6	1	2	22·75	1	1	—	5
Total.	102	3	97	14·75	43	49	5	8
	105							

* Average duration relates to patients who completed course.

APPENDIX I.

Death-Rates for 1930 from Tuberculosis in 119 Urban and Rural Districts in Lancashire, and in the 7 County Dispensary Areas.

SANITARY DISTRICT.	Estimated Population, 1930.	Pulmonary Tuberculosis.			Non-Pulmonary Tuberculosis.	
		Number of Deaths, 1930.	Death-Rate per 1,000 of Population, 1930.	*Average* Death-Rate 5 years, 1925–29.	Number of Deaths, 1930.	Death-Rate per 1,000 of Population, 1930.
URBAN.						
Abram	6,843	5	0·73	0·52	1	0·14
Accrington (B)	43,750	32	0·73	0·63	6	0·13
Adlington	4,285	5	1·16	0·81	1	0·23
Ashton-in-Makerfield	21,580	11	0·50	0·43	3	0·13
Ashton-under-Lyne (B)	51,810	36	0·69	0·90	7	0·13
Aspull	7,393	6	0·81	0·71	1	0·13
Atherton	20,190	6	0·29	0·54	4	0·19
Audenshaw	8,554	8	0·93	0·54	2	0·23
Bacup (B)	20,770	11	0·52	0·61	2	0·09
Barrowford	5,383	3	0·55	0·42	—	—
Billinge and Winstanley	5,188	3	0·57	0·68	4	0·77
Blackrod	3,715	3	0·80	0·15	—	—
Brierfield	7,934	6	0·75	0·46	—	—
Carnforth	3,161	1	0·31	1·01	2	0·63
Chadderton	28,040	15	0·53	0·72	5	0·17
Chorley (B)	31,360	21	0·66	0·51	5	0·15
Church	6,377	3	0·47	0·59	—	—
Clayton-le-Moors	8,215	7	0·85	0·48	1	0·12
Clitheroe (B)	12,110	6	0·49	0·60	5	0·41
Colne (B)	24,370	23	0·94	0·60	3	0·12
Crompton	15,040	6	0·39	0·68	3	0·19
Croston	1,979	—	—	0·20	2	1·01
Dalton-in-Furness	10,440	9	0·86	1·07	1	0·09
Darwen (B)	37,000	9	0·24	0·44	1	0·02
Denton	17,660	10	0·56	0·58	1	0·05
Droylsden	13,550	15	1·10	0·74	1	0·07
Eccles (B)	44,880	37	0·82	0·73	7	0·15
Failsworth	16,330	10	0·61	0·63	3	0·18
Farnworth	28,990	21	0·72	0·70	3	0·10
Fleetwood	22,780	12	0·52	0·68	5	0·21
Formby	7,769	3	0·38	0·57	1	0·12
Fulwood	6,915	3	0·43	0·36	—	—
Golborne	7,424	5	0·67	0·66	2	0·26
Grange-over-Sands	2,262	1	0·44	0·89	—	—
Great Crosby	17,700	7	0·39	0·62	1	0·05
Great Harwood	13,310	7	0·52	0·43	2	0·15
Haslingden (B)	16,960	9	0·53	0·97	1	0·05
Haydock	10,510	7	0·66	0·26	1	0·09
Heywood (B)	26,250	13	0·49	0·65	7	0·26
Hindley	22,600	12	0·53	0·78	2	0·08
Horwich	16,140	12	0·74	0·70	4	0·24
Huyton-with-Roby	5,285	4	0·75	0·64	—	—
Ince-in-Makerfield	22,700	17	0·74	0·70	6	0·26
Irlam	12,640	3	0·23	0·72	1	0·07
Kearsley	9,960	4	0·40	0·86	6	0·60
Kirkham	4,134	3	0·72	0·98	—	—
Lancaster (B)	42,660	18	0·42	0·82	8	0·18
Lathom and Burscough	7,777	2	0·25	0·58	1	0·12
Lees	4,882	5	1·02	0·57	1	0·20
Leigh (B)	46,230	36	0·77	0·75	9	0·19
Leyland	10,550	1	0·09	0·48	1	0·09
Litherland	16,300	16	0·98	1·24	7	0·42
Littleborough	11,930	5	0·41	0·41	—	—
Little Crosby	1,123	—	—	0·30	—	—
Little Hulton	8,050	1	0·12	0·49	2	0·24
Little Lever	5,112	4	0·78	0·38	1	0·19
Longridge	4,191	1	0·23	0·42	—	—
Lytham St. Annes (B)	25,320	11	0·43	0·47	3	0·11
Middleton (B)	29,490	18	0·61	0·59	2	0·06
Milnrow	8,709	4	0·45	0·73	—	-
Morecambe & Heysham (B)	23,250	13	0·55	0·67	4	0·17
Mossley (B)	12,210	3	0·24	0·48	2	0·16
Nelson (B)	39,120	20	0·51	0·57	2	0·05
Newton-in-Makerfield	20,200	18	0·89	0·85	3	0·14
Norden	4,336	1	0·23	0·69	1	0·23

APPENDIX I. (contd.).

SANITARY DISTRICT.	Estimated Population, 1930.	Pulmonary Tuberculosis.			Non-Pulmonary Tuberculosis.	
		Number of Deaths, 1930.	Death-Rate per 1,000 of Population, 1930.	*Average* Death-Rate 5 years, 1925-29.	Number of Deaths, 1930.	Death-Rate per 1,000 of Population, 1930.
URBAN (contd.)						
Ormskirk	7,513	5	0·66	0·84	—	—
Orrell	7,109	3	0·42	0·33	3	0·42
Oswaldtwistle	14,590	10	0·68	0·44	2	0·13
Padiham	11,820	8	0·67	0·68	1	0·08
Poulton-le-Fylde	3,218	2	0·62	0·19	—	—
Preesall	2,015	—	—	0·72	—	—
Prescot	9,684	9	0·92	0·71	—	—
Prestwich	22,930	13	0·56	0·50	2	0·08
Radcliffe	25,170	21	0·83	0·56	5	0·19
Rainford	3,600	1	0·27	0·31	—	—
Ramsbottom	14,890	12	0·80	0·57	1	0·06
Rawtenstall (B)	28,800	11	0·38	0·57	9	0·31
Rishton	6,808	5	0·73	0·59	1	0·14
Royton	17,110	9	0·52	0·73	2	0·11
Skelmersdale	6,467	3	0·46	0·48	3	0·46
Standish-with-Langtree ...	7,416	2	0·26	0·41	2	0·26
Stretford	54,850	38	0·69	0·70	4	0·07
Swinton and Pendlebury ...	33,370	14	0·41	0·61	3	0·08
Thornton Cleveleys ...	9,832	6	0·61	0·42	1	0·10
Tottington	6,612	1	0·15	0·35	1	0·15
Trawden	2,635	—	—	0·21	1	0·37
Turton	12,090	7	0·57	0·53	1	0·08
Tyldesley-with-Shakerley	15,210	4	0·26	0·68	3	0·19
Ulverston	9,099	6	0·65	0·56	—	—
Upholland	5,653	5	0·88	0·27	—	—
Urmston	8,872	4	0·45	0·75	1	0·11
Walton-le-Dale	12,720	13	1·02	0·72	3	0·23
Wardle	4,520	3	0·66	0·42	—	—
Waterloo-with-Seaforth ...	31,300	24	0·76	0·95	3	0·09
Westhoughton	16,650	7	0·42	0·42	—	—
Whitefield	8,806	7	0·79	0·48	—	—
Whitworth	8,504	6	0·70	0·95	—	—
Widnes (B)	40,930	43	1·05	0·85	4	0·09
Withnell	3,171	2	0·63	0·40	2	0·63
Worsley	14,680	7	0·47	0·44	2	0·13
Total Urban ...	1,542,320	938	0·60	0·64	220	0·14
RURAL.						
Barton-upon-Irwell ...	14,670	3	0·20	0·63	4	0·27
Blackburn	11,270	3	0·26	0·49	1	0·08
Burnley	17,810	10	0·56	0·46	4	0·22
Bury	9,121	4	0·43	0·48	1	0·10
Chorley	22,340	6	0·26	0·43	2	0·08
Clitheroe	8,981	5	0·55	0·35	2	0·22
Fylde	15,820	4	0·25	0·36	3	0·18
Garstang	11,500	2	0·17	0·43	1	0·08
Lancaster	9,461	5	0·52	0·38	1	0·10
Leigh	11,720	6	0·51	0·70	2	0·17
Limehurst	8,841	6	0·67	0·50	1	0·11
Lunesdale	6,469	3	0·46	0·59	—	—
Preston	29,070	14	0·48	0·32	2	0·06
Sefton	2,450	4	1·63	0·74	—	—
Ulverston	16,500	7	0·42	0·58	6	0·36
Warrington...	16,090	6	0·37	0·71	2	0·12
West Lancashire	23,610	8	0·33	0·49	—	—
Whiston	22,610	11	0·48	0·44	—	—
Wigan	6,307	1	0·15	0·49	1	0·15
Total Rural ...	264,640	108	0·40	0·48	33	0·12
Total for Administrative County... ...	1,806,960	1,046	0·57	0·62	253	0·14
DISPENSARY AREAS.						
No. 1	263,206	134	0·49	0·55	41	0·15
No. 2	350,103	195	0·55	0·53	45	0·12
No. 3	375,295	231	0·61	0·65	48	0·12
No. 4	346,074	195	0·56	0·66	52	0·15
No. 5	371,131	241	0·64	0·67	51	0·13
Furness Sub-Area	38,301	23	0·60	0·73	7	0·18
Fylde Sub-Area	62,850	27	0·46	0·55	9	0·15

APPENDIX II.

NOTIFICATIONS OF TUBERCULOSIS.

Since February 1st, 1913, tuberculosis—both pulmonary and other forms—has been compulsorily notifiable under the Public Health (Tuberculosis) Regulations. The number of notifications made year by year since 1913 are given on page 3.

Tables B and C, here inserted, analyse the notifications received, giving the part of the body affected and the age-groups.

Table D, also inserted, compares the male and female notifications.

Table 37.—*Deaths of 304 persons notified as suffering from pulmonary tuberculosis in 1930 which took place within three months of the date of notification.*

Period between date of case notification and death.	Certified cause of Death.			Total.
	Pulmonary.		Non-Pulmonary	
	Primary.	Secondary.		
Under 1 week	56	4	9	69
1 to 2 weeks	35	5	1	41
2 to 3 weeks	30	—	2	32
3 to 4 weeks	23	1	1	25
1 to 2 months	71	2	3	76
2 to 3 months	56	4	1	61
Total under 3 months ...	271	16	17	304
	287			

Included in the above table are 48 deaths which occurred outside the County area.

In addition to the foregoing 304 deaths which occurred within three months of notification, in 15 instances (9 pulmonary and 6 non-pulmonary) death took place *before* the actual receipt of the notification, against 25 (18 pulmonary and 7 non-pulmonary) in the preceding year.

TABLES B, C AND D,

ANALYSING

NOTIFICATIONS UNDER PUBLIC HEALTH

(TUBERCULOSIS)

REGULATIONS, 1930.

TABLE B.

ADMINISTRATIVE COUNTY OF LANCASTER.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1930.

CORRECTED* SUMMARY OF NOTIFICATIONS OF PULMONARY AND OTHER FORMS OF TUBERCULOSIS DURING THE FIFTY-TWO WEEKS ENDED 27TH DECEMBER, 1930.

(Collated from Weekly Returns of District Medical Officers of Health.)

NOTIFICATIONS ON FORMS A AND B—Excluding Duplicates.

	PULMONARY.						NON-PULMONARY.																	
							BONES AND JOINTS.																	
							Head (including Middle Ear).	Trunk.		Arm.							Leg.						Two or more different Joints.	Not Classified.
	Lungs only.	Lungs and Larynx.	Larynx.	Bronchial Glands.	Mediastinal Glands.	TOTAL.		Ribs and Sternum.	Spine.	Shoulder.	Scapula.	Humerus.	Elbow.	Radius.	Ulna.	Hand and Wrist.	Hip and Pelvis.	Femur.	Knee.	Tibia.	Fibula.	Foot and Ankle.		
Thirteen weeks ended 29th March, 1930 ...	426	4	1	1	...	432	...	4	12	...	...	...	1	...	...	14	16	1	5	...	...	5	4	1
Thirteen weeks ended 28th June, 1930 ...	437	5	3	2	...	447	1	4	19	1	...	...	1	...	...	14	15	...	10	...	...	2	2	1
Thirteen weeks ended 27th September, 1930	332	6	4	...	1	343	...	...	12	2	...	...	...	...	...	5	7	1	3	1	...	3	1	3
Thirteen weeks ended 27th December, 1930	299	6	...	...	...	305	...	1	12	...	...	...	2	...	...	6	13	1	8	...	...	2	2	...
Total	1494	21	8	3	1	*1527	1	9	55	3	...	...	4	...	...	39	51	3	26	1	...	12	9	5

	NON-PULMONARY.																		Total Pulmonary and Non-Pulmonary.	Total Notifications (*i.e.*, including cases previously notified by other Doctors).
	ABDOMINAL.			GENITO-URINARY.							MENINGITIS (Brain).	MILIARY (Generalised).	SKIN (Lupus).	PERIPHERAL GLANDS.			MISCELLANEOUS.	TOTAL.		
	Intestines.	Peritoneum.	Mesenteric Glands.	Bladder.	Fall. Tube.	Kidney.	Prostate.	Suprarenal.	Testicle and Epididymis.	Not Classified (two or more).				Axillary.	Cervical.	Inguinal.				
Thirteen weeks ended 29th March, 1930 ...	2	32	4	...	...	...	...	...	5	1	13	1	18	4	118	...	5	266	698	758
Thirteen weeks ended 28th June, 1930 ...	4	26	1	...	2	4	...	...	9	2	17	1	23	2	151	1	12	325	772	831
Thirteen weeks ended 27th September, 1930	1	28	4	...	...	3	...	1	2	2	23	...	9	3	97	...	5	216	559	609
Thirteen weeks ended 27th December, 1930	...	19	5	...	...	3	...	...	6	...	8	...	16	2	66	...	3	175	480	534
Total	7	105	14	...	2	10	...	1	22	5	61	2	66	11	432	1	25	*982	*2509	2732

NOTIFICATIONS ON FORMS A AND B—Excluding Duplicates.

		PULMONARY.													NON-PULMONARY.													Total Pulmonary and Non-Pulmonary.
	Years.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwds.	TOTAL.	TOTAL M. & F.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwds.	TOTAL.	TOTAL M. & F.	
Thirteen weeks ended 29th March, 1930 ...	M.	...	...	3	7	16	31	54	51	47	25	8	242	432	2	19	25	21	24	8	16	4	4	4	1	128	266	698
	F.	...	1	3	11	30	33	54	26	13	11	8	190		3	13	31	17	13	20	23	6	10	2	...	138		
Thirteen weeks ended 28th June, 1930 ...	M.	...	5	7	7	21	31	61	56	49	24	2	263	447	3	27	35	21	20	11	16	5	5	2	3	148	325	772
	F.	...	2	6	6	37	27	44	36	12	10	4	184		3	24	40	32	20	10	19	10	10	7	2	177		
Thirteen weeks ended 27th September, 1930	M.	1	...	1	8	18	22	35	33	34	17	6	175	343	1	22	26	8	8	5	8	3	1	...	...	82	216	559
	F.	...	...	3	7	23	34	41	28	20	8	4	168		2	20	14	23	15	23	20	8	6	3	...	134		
Thirteen weeks ended 27th December, 1930 ...	M.	...	...	3	5	11	22	39	34	29	16	6	165	305	...	10	19	19	15	4	5	6	2	6	3	89	175	480
	F.	...	...	1	5	14	28	47	17	16	8	4	140		4	10	15	8	15	10	9	11	2	1	1	86		
Total	M.	1	5	14	27	66	106	189	174	159	82	22	845	*1527	6	78	105	69	67	28	45	18	12	12	7	447	*982	*2509
	F.	...	3	13	29	104	122	186	107	61	37	20	682		12	67	100	80	63	63	71	35	28	13	3	535		

		NOTIFICATIONS. FORM B ONLY. (By School Medical Officers.)										Number of Cases Notified on Form C. (Admissions).		Number of Cases notified on Form D (Discharges from Institutions).
		PRIMARY NOTIFICATIONS. (*i.e.*, excluding duplicates).									Total Notifications (*i.e.*, including cases previously notified by other Doctors).			
		Under 5 years.		5 to 10 years.		10 to 15 years.		TOTAL.				Public Assistance Hospitals.	Sanatoria.	
	Years.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.					
Thirteen weeks ended 29th March, 1930 ...	M.	...	...	...	2	...	...	...	2	5	5	10	343	285
	F.	...	...	...	1	...	2	...	3					
Thirteen weeks ended 28th June, 1930 ...	M.	...	1	1	5	...	...	1	6	19	19	7	334	307
	F.	...	1	...	6	...	5	...	12					
Thirteen weeks ended 27th September, 1930	M.	...	...	...	...	...	2	...	2	3	5	12	370	366
	F.	...	...	...	1	...	...	...	1					
Thirteen weeks ended 27th December, 1930 ...	M.	...	...	...	2	...	...	...	2	3	3	5	299	293
	F.	...	...	...	1	...	...	...	1					
Total	M.	...	1	1	9	...	2	1	12	30	32	34	1346	1251
	F.	...	1	...	9	...	7	...	17					

*Corrected figures after deducting 63 pulmonary and 55 non-pulmonary cases notified in error by practitioners.

TABLE C.

ADMINISTRATIVE COUNTY OF LANCASTER.

Public Health (Tuberculosis) Regulations, 1930.

ANALYSIS OF THE NOTIFICATIONS ON FORMS A AND B (EXCLUDING DUPLICATES) RECEIVED DURING THE FIFTY-TWO WEEKS ENDED 27th DECEMBER, 1930. († Corrected figures.)

(Collated from Weekly Returns of District Medical Officers of Health.)

Age—Years.	...	0 — 1			1 — 5			5 — 10			10 — 15			15 — 20			20 — 25			25 — 35			35 — 45			45 — 55			55 — 65			65 & upwds.			TOTAL.			...
Sex.	Col.	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	Col.
PULMONARY—																																									
Lungs only ...	1	1	...	1	5	3	8	14	13	27	26	28	54	66	103	169	106	121	227	183	183	366	164	106	270	153	60	213	81	36	117	22	20	42	821	673	1494	1
Lungs and Larynx...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	4	1	5	7	1	8	5	...	5	1	1	2	...	...	...	17	4	21	2
Larynx ...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	3	3	...	3	1	1	2	...	...	...	...	...	...	5	3	8	3
Bronchial Glands	4	...	...	...	...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	2	1	3	4
Mediastinal Glands	5	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	5
PULMONARY TOTAL ...	6	1	...	1	5	3	8	14	13	27	27	29	56	66	104	170	106	122	228	189	186	375	174	107	281	159	61	220	82	37	119	22	20	42	845	682	†1527	6
*Cases—Pulmonary and Non-Pulmonary combined ...		...	...	...	1	1	2	3	...	3	2	2	4	4	3	7	5	3	8	7	9	16	5	1	6	4	...	4	1	...	1	...	1	1	32	20	52	
NON-PULMONARY—																																									
BONES AND JOINTS																																									
Head— (Incl. Middle Ear) ...	7	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	7
Trunk— Ribs and Sternum ...	8	...	...	...	...	...	...	...	1	1	1	2	3	...	...	...	1	...	1	2	...	2	...	...	...	1	...	1	1	...	1	...	...	...	6	3	9	8
Spine ...	9	...	...	...	5	2	7	2	1	3	3	1	4	5	3	8	5	3	8	4	6	10	3	2	5	3	2	5	1	2	3	...	2	2	31	24	55	9
Arm— Shoulder ...	10	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	1	1	...	...	...	...	...	...	2	1	3	10
Scapula ...	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
Humerus ...	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Elbow ...	13	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	1	1	1	...	1	...	...	...	3	1	4	13
Radius ...	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Ulna ...	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
Hand and Wrist ...	16	2	1	3	1	4	5	1	1	2	...	1	1	5	2	7	2	3	5	2	3	5	...	3	3	1	5	6	...	...	...	1	1	2	15	24	39	16
Leg— Hip and Pelvis ...	17	...	...	...	4	5	9	6	8	14	1	3	4	9	6	15	1	1	2	1	1	2	...	...	...	1	1	2	2	1	3	...	...	...	25	6	51	17
Femur ...	18	...	...	...	1	...	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	1	2	3	18
Knee ...	19	...	...	...	2	2	4	3	1	4	...	1	1	2	2	4	3	...	3	...	1	1	3	1	4	2	2	4	...	...	...	1	...	1	16	10	26	19
Tibia ...	20	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	20
Fibula ...	21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Foot and Ankle ...	22	...	...	...	...	...	...	...	2	2	1	...	1	3	...	3	...	2	2	1	...	1	...	...	...	1	...	1	1	...	1	1	...	1	8	4	12	22
Two or more different Joints ...	23	...	...	...	1	1	2	...	...	...	3	1	4	1	...	1	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	7	2	9	23
Not Classified ...	24	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	5	5	24
ABDOMINAL																																									
Intestines ...	25	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	1	...	1	1	2	3	...	1	1	...	...	...	...	...	...	...	...	...	2	5	7	25
Peritoneum ...	26	...	1	1	13	10	23	11	8	19	11	5	16	6	11	17	...	9	9	5	7	12	1	7	8	...	...	...	...	...	...	...	...	...	47	58	105	26
Mesenteric Glands ...	27	...	...	...	...	1	1	5	...	5	3	...	3	1	3	4	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	5	14	27
GENITO-URINARY																																									
Bladder ...	28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
Fallopian Tube ...	29	...	...	...	...	...	...	...	...	...	...	1	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	29
Kidney ...	30	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	2	...	2	2	2	4	...	2	2	1	...	1	...	...	...	...	...	...	5	5	10	30
Prostate ...	31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Suprarenal ...	32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	1	32
Testicle and Epididymis	33	...	...	...	...	...	...	1	...	1	1	...	1	1	...	1	2	...	2	8	1	9	3	...	3	1	...	1	4	...	4	...	...	...	21	1	22	33
Not Classified ... (Two or more)	34	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	1	2	1	...	1	...	...	...	...	...	...	1	...	1	...	...	...	4	1	5	34
MENINGITIS (Brain) ...	35	2	7	9	11	14	25	5	3	8	1	6	7	1	2	3	1	3	4	...	3	3	1	1	2	...	...	...	...	...	...	...	...	...	22	39	61	35
MILIARY (Generalised) ...	36	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	36
SKIN (Lupus) ...	37	...	...	...	1	...	1	6	5	11	5	4	9	3	8	11	...	4	4	4	9	13	2	5	7	1	3	4	...	4	4	2	...	2	24	42	66	37
PERIPHERAL GLANDS																																									
Axillary ...	38	...	1	1	...	...	...	...	2	2	...	2	2	1	...	1	...	2	2	...	1	1	...	...	...	...	2	2	...	...	...	...	...	...	1	10	11	38
Cervical...	39	2	2	4	39	23	62	62	60	122	39	51	90	26	24	50	7	26	33	10	34	44	3	10	13	..	9	9	...	4	4	1	...	1	189	243	432	39
Inguinal ...	40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	40
MISCELLANEOUS ...	41	...	...	...	...	3	3	...	4	4	...	2	2	1	1	2	1	4	5	2	1	3	1	2	3	...	2	2	...	...	...	1	...	1	6	19	25	41
NON-PULMONARY TOTAL ...	42	6	12	18	78	67	145	105	100	205	69	80	149	67	63	130	28	63	91	45	71	116	18	35	53	12	28	40	12	13	25	7	3	10	447	535	†982	42
GRAND TOTAL ...	43	7	12	19	83	70	153	119	113	232	96	109	205	133	167	300	134	185	319	234	257	491	192	142	334	171	89	260	94	50	144	29	23	52	1292	1217	†2509	43

* Combined cases are included in pulmonary total, but are shown separately for purpose of reference.

† Corrected figures after deducting 63 pulmonary and 55 non-pulmonary cases notified in error by practitioners.

TABLE D.

ADMINISTRATIVE COUNTY OF LANCASTER.

Public Health (Tuberculosis) Regulations, 1930.

THE FOLLOWING TABLE COMPARES THE MALE AND FEMALE NOTIFIED CASES IN THE ADMINISTRATIVE COUNTY DURING THE YEARS 1913 TO 1930, AT CERTAIN AGE GROUPS :—

YEAR.	PULMONARY TUBERCULOSIS.														NON-PULMONARY TUBERCULOSIS.													
	Sex.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and up-wds.	Total.	Total* M. & F.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and up-wds.	Total.	Total* M. & F.
1913	M	1	24	97	70	129	131	311	292	228	114	29	1426		29	128	177	137	98	58	71	48	27	18	3	794	
(11 months)	F	6	28	100	104	158	188	296	201	103	65	25	1274	2700	28	118	134	132	118	86	80	47	29	19	7	798	1592
1914	M	6	40	80	83	112	172	329	315	240	107	23	1507		43	111	131	95	77	36	47	23	20	14	3	600	
	F	3	32	115	107	140	181	336	225	107	47	20	1313	2820	37	88	98	89	77	44	58	27	12	6	4	540	1140
1915	M	5	47	97	79	127	138	305	303	235	117	34	1487		39	109	113	93	61	46	50	29	14	5	3	562	
	F	5	27	96	111	152	191	383	239	100	60	21	1385	2872	26	88	107	88	84	53	61	33	15	7	4	566	1128
1916	M	1	31	71	77	121	157	331	296	190	96	36	1407		20	127	135	99	65	42	47	34	12	13	5	599	
	F	2	24	81	96	165	186	345	220	98	52	13	1282	2689	8	68	122	114	85	46	65	41	19	11	2	581	1180
1917	M	4	20	77	62	113	104	262	268	190	90	30	1220		21	116	109	105	61	23	42	30	8	9	1	525	
	F	2	22	90	100	129	155	296	185	107	50	19	1155	2375	7	79	97	98	89	59	49	25	23	6	5	537	1062
1918	M	3	35	55	59	140	108	300	317	232	98	28	1375		14	75	103	65	60	19	29	16	14	7	2	404	
	F	1	24	69	74	139	166	297	207	117	52	13	1159	2534	10	75	84	92	80	46	46	29	9	6	4	481	885
1919	M	2	22	53	55	94	107	238	212	165	91	17	1056		13	50	97	80	53	26	31	22	19	12	4	407	
	F	5	14	54	80	126	161	261	184	99	41	24	1049	2105	10	59	98	76	61	43	41	29	11	7	5	440	847
1920	M	2	24	56	63	94	120	281	249	160	90	14	1153		31	62	107	108	68	26	35	23	16	11	5	492	
	F	2	20	53	71	115	122	264	147	84	36	17	931	2084	12	66	86	78	62	46	52	34	23	16	1	476	968
1921	M	1	17	43	47	94	133	222	225	162	84	19	1047		12	60	110	84	53	32	41	23	17	6	4	442	
	F	...	12	53	77	132	160	255	156	82	50	20	997	2044	15	62	89	81	65	41	53	15	21	9	6	457	899
1922	M	3	16	38	47	83	120	227	190	148	99	27	998		18	101	111	79	55	37	39	22	13	7	3	485	
	F	4	15	45	57	135	135	202	146	61	42	23	865	1863	13	77	80	95	61	45	50	24	14	7	5	471	956
1923	M	2	10	41	43	82	132	236	207	147	94	13	1007		18	115	134	105	75	35	45	22	14	15	6	584	
	F	1	14	43	60	115	149	251	149	83	49	16	930	1937	14	103	110	107	68	60	64	31	28	14	5	604	1188
1924	M	...	27	37	52	105	110	203	199	197	97	18	1045		19	123	92	92	95	35	43	25	17	12	3	556	
	F	3	12	29	55	144	139	223	169	94	49	10	927	1972	6	99	87	94	80	55	72	30	17	11	13	564	1120
1925	M	...	22	32	38	81	115	212	200	192	74	24	990		17	108	106	73	58	37	53	26	15	12	5	510	
	F	3	10	24	44	144	153	198	136	85	34	25	856	1846	9	86	84	91	82	41	57	33	18	10	6	517	1027
1926	M	1	9	27	40	91	113	210	198	158	110	23	980		10	90	97	76	75	29	35	32	16	7	3	470	
	F	2	12	41	47	114	169	224	120	68	38	13	848	1828	19	83	94	51	67	56	51	34	17	6	5	483	953
1927	M	1	11	47	39	115	111	197	187	185	85	19	997		12	101	131	87	66	38	40	18	13	4	7	517	
	F	...	13	37	49	129	128	195	113	71	51	11	797	1794	15	84	95	81	61	47	75	33	20	11	6	528	1045
1928	M	1	7	31	20	70	106	187	163	176	82	27	870		16	82	114	66	67	43	40	15	14	10	7	474	
	F	...	6	33	32	126	147	195	125	62	44	20	790	1660	13	69	100	70	56	63	50	27	21	8	5	482	956
1929	M	4	7	32	17	80	99	160	180	165	76	23	843		17	98	99	67	52	37	40	22	16	7	5	460	
	F	...	7	18	23	111	130	186	99	53	28	19	674	1517	3	65	92	51	54	48	63	36	22	15	4	453	913
1930	M	1	5	14	27	66	106	189	174	159	82	22	845		6	78	105	69	67	28	45	18	12	12	7	447	
	F	...	3	13	29	104	122	186	107	61	37	20	682	1527	12	67	100	80	63	63	71	35	28	13	3	535	982

* Corrected figures from 1922 after deducting the following cases found to be non-tuberculous and notifications cancelled :—1922 : 14 pulmonary, 12 non-pulmonary ; 1923 : 33 pulmonary, 31 non-pulmonary ; 1924 : 57 pulmonary, 38 non-pulmonary ; 1925 : 83 pulmonary, 49 non-pulmonary ; 1926 : 61 pulmonary, 41 non-pulmonary ; 1927 : 68 pulmonary, 51 non-pulmonary ; 1928 : 63 pulmonary, 52 non-pulmonary ; 1929 : 61 pulmonary, 44 non-pulmonary ; and 1930 : 63 pulmonary, 55 non-pulmonary.

Table 38.—*Actual number of deaths from pulmonary and non-pulmonary tuberculosis since 1918 not previously notified under the Public Health (Tuberculosis) Regulations.*

Year.	Non-notified Fatal Cases.		
	Pulmonary Tuberculosis.	Non-Pulmonary Tuberculosis.	Total.
1918	303	137	440
1919	221	104	325
1920	177	122	299
1921	135	96	231
1922	105	83	188
1923	85	74	159
1924	64	65	129
1925	67	57	124
1926	58	32	90
1927	54	42	96
1928	56	51	107
1929	62	61	123
1930	**46**	**61**	**107**

The 107 deaths in 1930 of cases not previously notified under the Regulations are further analysed below :—

Table 39.

	Cause of Death.			Total.
	Pulmonary.		Non-Pulmonary.	
	Primary.	Secondary.		
Deaths of persons at private addresses	28	6	39	73
Deaths in County Mental Hospitals of persons belonging to County area ...	2	1	—	3
Deaths in Public Assistance Hospitals of persons belonging to County area ...	9	—	10	19
Deaths in other public institutions of persons belonging to County area...	—	—	12	12
	39	7		
Total	46		61	107

During 1930, 119 pulmonary and 61 non-pulmonary deaths occurred outside the County area of persons usually residing in the Administrative County. Of these, 108 pulmonary and 60 non-pulmonary occurred in public institutions. In 46 instances no case notification could be traced. These are not included in Table 39.

N.B.—The Tables mentioned in Appendix II. have been prepared in the County public health department.

APPENDIX III.

HOUSING CONDITIONS OF PATIENTS IN EACH DISPENSARY AREA AT THE END OF 1930.

	Pulmonary cases considered infectious.		Pulmonary cases not considered infectious.		Non-Pulmonary cases.	
	Under 15 years.	15 years & over.	Under 15 years.	15 years & over.	Under 15 years.	15 years & over.
Patients occupying a separate bedroom :						
Area No. 1	—	150	14	107	35	97
Area No. 2	2	198	2	124	20	84
Area No. 3	—	304	4	158	27	93
Area No. 4	4	305	4	199	47	145
Area No. 5	2	267	16	170	11	90
Furness Sub-Area ...	—	35	6	49	5	25
Fylde Sub-Area ...	—	31	3	54	11	21
TOTAL	8	1290	49	861	156	555
Patients occupying a separate bed but not a separate bedroom :						
Area No. 1	—	31	26	26	83	36
Area No. 2	4	123	6	56	94	93
Area No. 3	1	118	21	122	107	91
Area No. 4	—	71	17	78	98	96
Area No. 5	2	88	67	124	169	122
Furness Sub-Area ...	1	5	22	18	21	8
Fylde Sub-Area ...	2	10	5	35	47	23
TOTAL	10	446	164	459	619	469
Patients not occupying a separate bed :	*	†				
Area No. 1	2	18	19	117	131	163
Area No. 2	—	20	4	78	64	157
Area No. 3	—	14	23	198	135	276
Area No. 4	—	13	12	211	137	217
Area No. 5	1	37	75	303	223	208
Furness Sub-Area ...	—	3	4	51	5	12
Fylde Sub-Area ...	—	4	5	57	47	47
TOTAL	3	109	142	1015	742	1080
GRAND TOTAL ...	21	1845	355	2335	1517	2104

* These children were in sanatoria at the end of 1930.

† Of the adult infective patients without a separate bed, there were in sanatoria or hospitals at the end of 1930 the following patients :—Area No. 1, 4 ; Area No. 2, 7 ; Area No. 3, 4 ; Area No. 4, 7 ; Area No. 5, 12 ; Furness Sub-Area, 1 ; and Fylde Sub-Area, 1 ; Total, 36.

APPENDIX IV.

Return showing the work of the Dispensaries during the year 1930. (Table I. of Memorandum 37/T of Ministry of Health).

DIAGNOSIS.	PULMONARY.				NON-PULMONARY.				TOTAL.			
	Adults.		Children.		Adults.		Children.		Adults.		Children.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
A.—NEW CASES examined during the year (excluding contacts):												
(*a*) Definitely tuberculous ...	642	490	32	35	153	228	194	200	795	718	226	235
(*b*) Doubtfully tuberculous	—	—	—	—	—	—	—	—	115	93	47	44
(*c*) Non-tuberculous... ...	—	—	—	—	—	—	—	—	779	776	388	336
B.—CONTACTS examined during the year:												
(*a*) Definitely tuberculous ...	17	14	5	2	1	8	1	7	18	22	6	9
(*b*) Doubtfully tuberculous	—	—	—	—	—	—	—	—	6	7	9	3
(*c*) Non-tuberculous ...	—	—	—	—	—	—	—	—	161	263	163	176
C.—CASES written off the Dispensary Register as:												
(*a*) Cured	154	143	8	21	181	176	102	91	335	319	110	112
(*b*) Diagnosis not confirmed or non-tuberculous (including cancellation of cases notified in error)... ...	—	—	—	—	—	—	—	—	1002	1094	591	545
D.—NUMBER OF PERSONS on Dispensary Register on 31st December, 1930:												
(*a*) Diagnosis completed ...	2316	1864	196	180	935	1169	822	695	3251	3033	1018	875
(*b*) Diagnosis not completed	—	—	—	—	—	—	—	—	11	10	2	1

1. Number of persons on Dispensary Register on 1st January, 1930. ...	8334
2. Number of patients transferred from other areas and of "lost sight of" cases returned	136
3. Number of patients transferred to other areas and cases "lost sight of"	546
4. Died during the year...	1010
5. Number of observation cases under A (*b*) and B (*b*) above, in which period of observation exceeded 2 months...	60
6. Number of attendances at the Dispensary (including Contacts), excluding attendances for light treatment	23908
7. Number of attendances of non-pulmonary cases at Orthopædic Outstations for treatment or supervision	2097
8. Number of attendances, at General Hospitals or other Institutions approved for the purpose, of patients for	At County Dispensaries 38703 At Hospitals
(*a*) "Light" treatment	1253
(*b*) Other special forms of treatment at special hospitals	327

9. Number of patients to whom Dental Treatment was given, at or in connection with the Dispensary ...	23*
10. Number of consultations with medical practitioners:—	
(*a*) At Homes of Applicants ...	893
(*b*) Otherwise	4844
11. Number of other visits by Tuberculosis Officers to Homes ...	4795
12. Number of visits by Nurses or Health Visitors to Homes for Dispensary purposes	42115
13. Number of	
(*a*) Specimens of sputum, &c., examined	4360†
(*b*) X-ray examinations made in connection with Dispensary work	6530
14. Number of Insured Persons on Dispensary Register on the 31st December, 1930.	4344
15. Number of Insured Persons under Domiciliary Treatment on the 31st December, 1930.	1324
16. Number of reports received during the year in respect of Insured Persons:—	
(*a*) Form G.P. 17	17
(*b*) Form G.P. 36	35

39 cases previously written off the dispensary register as cured have returned to treatment in 1930.

* In addition, 343 individual patients received dental attention whilst undergoing treatment in sanatoria or hospitals.

† In addition, 1,294 specimens were examined for medical practitioners in respect of persons whose names were not on the dispensary register at the date of the examination.

APPENDIX V.

RESIDENTIAL INSTITUTIONS.

(A) Average Number of Beds Available for Patients during the Year 1930.

(Table II. of Memorandum 37/T of Ministry of Health).

	Observation.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total.
		" Sanatorium " Beds.	"Hospital" Beds.	Disease of Bones and Joints.	Other Conditions.	
Adult Males	6	167	154	54	10	391
Adult Females	2	144	124	39	7	316
Children under 15	3	51	3	123	33	213
Total	11	362	281	216	50	920

(B) Return showing the Extent of Residential Treatment during the Year 1930.

			In Institutions on Jan. 1.	Admitted during the year.	Discharged during the year.	Died in the Institutions.	In Institutions on Dec. 31.
Number of Patients ...	Adults	M.	369	786	629	146	380
		F.	299	628	524	90	313
	Children	M.	116	137	143	6	104
		F.	79	133	103	8	101
Number of Observation Cases	Adults	M.	2	38	36	2	2
		F.	6	21	24	—	3
	Children	M.	1	5	6	—	—
		F.	2	11	10	—	3
Total			874	1759	1475	252	906

APPENDIX VI.

Return showing the immediate results of treatment of patients and of observation of doubtful cases discharged from Residential Institutions during the year 1930.

(Table III. of Memorandum 37/T of Ministry of Health).

Classification on admission to the institution.		Condition at time of discharge.	Duration of residential treatment in the institution.												Total
			Under 3 months.			3—6 months			6—12 months			More than 12 months			
			M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	
Pulmonary Tuberculosis.	Class T.B. minus.	Quiescent	9	12	1	16	9	3	11	5	7	—	1	10	84
		Improved	30	13	7	18	18	3	5	5	2	3	2	2	108
		No material improvement...	10	8	3	5	—	—	—	1	1	2	—	—	30
		Died in institution	5	7	—	3	1	—	—	—	—	1	1	—	18
	Class T.B. plus Group 1.	Quiescent	3	1	—	2	6	—	5	3	—	—	—	1	21
		Improved	8	2	—	8	8	—	8	11	—	5	4	1	55
		No material improvement...	6	4	—	4	—	—	2	2	—	1	2	—	21
		Died in institution	3	2	—	3	1	—	1	—	—	1	—	—	11
	Class T.B. plus Group 2.	Quiescent	3	—	—	8	7	1	8	2	—	4	5	—	38
		Improved	32	26	2	60	47	—	57	48	—	13	15	1	301
		No material improvement...	34	32	2	19	19	—	17	7	—	7	12	2	151
		Died in institution	42	26	—	20	10	1	15	6	—	8	2	—	130
	Class T.B. plus Group 3.	Quiescent	—	—	—	1	—	—	1	—	—	—	—	—	2
		Improved	6	2	—	16	13	—	10	8	—	8	1	2	66
		No material improvement	14	14	—	3	5	1	3	5	—	3	4	—	52
		Died in institution	25	18	1	8	3	—	3	6	—	2	—	—	66
Non-Pulmonary Tuberculosis.	Bones & Joints.	Quiescent or arrested ...	2	2	7	1	2	12	4	2	6	5	3	18	64
		Improved	40	34	15	4	4	6	6	4	8	9	8	12	150
		No material improvement...	4	3	4	2	—	1	1	1	1	—	1	—	18
		Died in institution	3	1	3	—	2	1	1	1	1	—	—	3	16
	Abdominal.	Quiescent or arrested ...	—	1	—	—	—	2	—	—	1	—	—	4	8
		Improved	1	5	7	—	—	2	1	—	3	—	1	2	22
		No material improvement...	1	—	2	—	—	—	—	—	3	—	—	—	6
		Died in institution	—	—	2	—	—	—	—	—	—	—	—	—	2
	Other Organs.	Quiescent or arrested ...	1	2	—	—	—	—	—	—	1	—	1	—	5
		Improved	19	17	1	2	—	1	1	—	1	—	—	1	43
		No material improvement...	5	1	1	—	—	—	—	—	—	—	—	—	7
		Died in institution	2	3	1	—	—	—	—	—	—	—	—	—	6
	Peripheral Glands.	Quiescent or arrested ...	8	7	9	—	—	1	—	—	5	—	—	—	30
		Improved	21	34	46	1	1	5	1	1	1	—	—	1	112
		No material improvement...	1	—	4	—	—	—	—	—	—	—	—	—	5
		Died in institution	—	—	1	—	—	—	—	—	—	—	—	—	1
			Under. 1 week			1—2 weeks.			2—4 weeks.			More than 4 weeks.			
Observation for purpose of diagnosis.		Tuberculous	1	—	—	—	2	—	—	5	—	8	1	10	27
		Non-tuberculous	1	—	1	—	—	—	8	4	1	16	11	3	45
		Doubtful	—	—	—	1	—	—	—	—	—	1	1	1	4
		Died	1*	—	—	1†	—	—	—	—	—	—	—	—	2

*Post-mortem revealed disease of aortic and mitral valves.
†Diagnosis in this case was multiple carcinoma.

APPENDIX VII.

INSTITUTIONAL ACCOMMODATION.

The following table shows the number of beds occupied by County patients undergoing residential treatment for pulmonary and non-pulmonary tuberculosis on the 31st December, 1930 :—

Institution.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
(*a*) *Sanatoria.*					
Aitken, near Bury	49	—	—	—	49
Brompton, London	1	—	—	—	1
East Lancashire, Cheshire	55	—	—	—	55
Eastby, near Skipton	—	24	—	9	33
Elswick, near Kirkham	41	1	—	—	42
Freshfield, near Liverpool	—	1	—	—	1
Halifax, Shelf	16	2	—	—	18
High Carley, near Ulverston	113	—	1	—	114
Liverpool, Frodsham	1	—	—	—	1
Meathop, Grange-over-Sands	21	—	—	—	21
Oubas House, near Ulverston	—	19	—	—	19
Wilkinson, Bolton	5	1	—	—	6
Total	302	48	1	9	360
(*b*) *Pulmonary Hospitals.*					
Burnley	18	—	—	—	18
Chadderton, near Oldham...	44	—	—	—	44
Eccleston Hall, St. Helens	3	1	—	—	4
Heath Charnock, Chorley	29	—	—	—	29
Hefferston Grange, Cheshire	9	—	—	—	9
Ipswich	1	—	—	—	1
Marland, Rochdale	5	—	—	—	5
Peel Hall, Little Hulton	54	—	—	—	54
Pemberton, Wigan	4	—	—	—	4
Rufford, near Ormskirk	42	—	—	—	42
Withnell, near Chorley	45	—	1	—	46
Wolstenholme Hall, Norden	26	—	—	—	26
Total	280	1	1	—	282
(*c*) *Training Colonies.*					
Burrow Hill, Surrey	1	—	—	—	1
Derwen Cripples' College, Oswestry ...	—	—	4	—	4
Papworth Hall, Cambridge	—	—	1	—	1
Preston Hall, Kent	2	—	—	—	2
Total	3	—	5	—	8
(*d*) *Observation Cases.*					
Elswick Sanatorium	—	—	1	—	1
High Carley Sanatorium	1	—	—	—	1
Oubas House Sanatorium	—	2	—	—	2
Peel Hall Pulmonary Hospital	1	—	—	—	1
Preston Royal Infirmary	—	—	—	1	1
Rufford Pulmonary Hospital	1	—	—	—	1
Withnell Pulmonary Hospital	1	—	—	—	1
Total	4	2	1	1	8

APPENDIX VII.

INSTITUTIONAL ACCOMMODATION (contd.).

Institution.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
(*e*) *General Hospitals.*					
Ashton-under-Lyne Infirmary	—	—	1	1	2
Blackburn Royal Infirmary	—	—	1	2	3
David Lewis Northern Hospital	1	—	1	—	2
Liverpool Stanley Hospital	—	—	—	2	2
Manchester Royal Infirmary	—	—	1	—	1
North Lonsdale Hospital	—	—	2	—	2
Preston Royal Infirmary	—	—	5	1	6
Salford Royal Hospital	—	—	1	—	1
Wigan Infirmary	—	—	—	2	2
	1	—	12	8	21
(*f*) *Hospitals for Non-Pulmonary Tuberculosis.*					
Alton, Hants. (Lord Mayor Treloar Cripples' Hospital)	—	—	—	20	20
Coleshill (Warwickshire Orthopaedic Hospital for Children)	—	2	—	25	27
East Lancashire, Cheshire...	1	—	5	—	6
Elswick, near Kirkham	—	—	21	2	23
Heswall, Cheshire (Royal Liverpool Children's Hospital)	—	—	—	16	16
Leasowe, Cheshire (Liverpool Open-Air Hospital for Children)	—	—	—	30	30
Pendlebury (Royal Manchester Children's Hospital)	—	—	—	1	1
Rufford, near Ormskirk	1	—	7	—	8
Sheffield (King Edward VII. Hospital for Crippled Children)	—	1	—	11	12
Shropshire Orthopædic Hospital, Oswestry	—	—	52	4	56
United Services Fund—					
Heatherwood, Berks....	—	—	—	14	14
Melton Lodge, Great Yarmouth ...	—	—	—	5	5
West Kirby (Children's Convalescent Home)	—	—	—	8	8
Total	2	3	85	136	226
Skin Hospital.					
Manchester and Salford	—	—	1	—	1
Grand Total	592	54	106	154	906
	646		260		

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